

FlaskScrubber® & SteamScrubber®

Laboratory Glassware Washers



*Protecting your
laboratory environment*

LABCONCO®

FlaskScrubbers® & SteamScrubbers®

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Labconco's FlaskScrubber and SteamScrubber Glassware Washers and new FlaskScrubber Vantage Series Glassware Washers have been engineered with the performance and convenience features that laboratories demand.

Flexible Programs

Flexible cycle programs give the user control in selecting the right combination of parameters. A keypad and LCD display allow parameters to be easily set or changed. Memory stores both preset and user set programs for reproducible protocols.

Multiple Rinses

Multiple rinses rid glassware of residual contaminants. Up to six rinses may be selected for one cycle program.

Sanitizing High Heat Models

High heat models that reach 180° F (82° C) effectively remove lipids and sanitize glassware. For normal loads or delicate plasticware, simply select cycle programs that reach 140° F (60° C) or lower.

Rugged Construction

Rugged stainless steel construction inside and out withstands heavy use and reduces corrosion and contaminant build-up.

Interior View

Viewing window with interior light lets you see each cycle in progress. This feature, which is optional on FlaskScrubber and SteamScrubber Glassware Washers and standard on FlaskScrubber Vantage Series Glassware Washers, gives at-a-glance assurance of your washer's performance.

Adjustable Base Stand

Base stand elevates the washer 17" for easier loading and unloading. This optional stand has a convenient compartment for storing detergent and other accessories.

FlaskScrubbers® & SteamScrubbers®

Overview

Select the Labconco glassware washer that best suits your glassware mix and level of contamination-sensitive research.



The FlaskScrubber is designed for primarily narrow-neck glassware such as volumetric flasks. The bottom spindle rack included with the washer holds up to 34 pieces of labware and may be outfitted with specialized inserts to accommodate pipets. Water and detergent are pumped through the spindles to reach the innermost areas of your glassware. A patented drying system vacuums moisture from inside the glassware, replacing it with hot, dry air. Optional basket inserts and upper racks increase the FlaskScrubber's capacity and flexibility.

The SteamScrubber has stainless steel top and bottom racks that accommodate basket inserts for a wide range of glassware shapes and sizes, primarily beakers and other wide-mouth glassware. Specialized inserts for BOD bottles, petri dishes, culture tubes, small utensils and DNA sequencing plates enhance the SteamScrubber's versatility.



The new FlaskScrubber Vantage Series Glassware Washer has many of the features of the FlaskScrubber, such as the 34-spindle rack, plus advanced elements that safeguard glassware used in contamination-sensitive research. Temperature up to 180° F (82° C) may be programmed for wash and rinse cycles to remove lipids and sanitize glassware. Up to six purified water rinses may be programmed to ensure that no water soluble contaminants are introduced. The water conductivity sensor measures the level of dissolved inorganics in the tank to validate water cleanliness, hardness and rinse thoroughness. The forced air drying system incorporates a 99.97% efficient HEPA filter to remove airborne particulates. The RS-232 port provides a means to document settings and actual washing conditions. These advanced features work together to deliver thoroughly clean, dry labware.

FlaskScrubber® Vantage™ Series Laboratory Glassware Washers

Flexible Cycle Options

Select from seven programs

with the flexibility to change multiple parameters.

SELECT PROGRAM.
Selects one of seven programs, which is shown on the display.

STEAM. Displays "Y" for yes or "N" for no. Designates steam to be added before WASH 2 cycle to any program except RINSE ONLY and PLASTIC.

WASH 1. Displays first wash time, either 0 or 5, depending on program selected.

WASH 2. Displays second wash time. Except for RINSE ONLY, the set point time may be modified from 10 to 40 minutes.

NUMBER OF RINSES.
Displays total number of rinses (tap and pure water rinses). User may select from 1 to 6 rinses.

NUMBER OF PURE RINSES. Displays number of pure rinses. User may choose that none to all of the number of rinses selected be pure water. If pure water rinses are selected, they occur last.

TOTAL WASH.
Displays total programmed wash time including drain, fill, wash and rinse times. Or while operating, the total wash time remaining is displayed.*

DRY. Displays programmed dry time. The set point time may be modified to 0 or up to 99 minutes. While operating, the dry time remaining is displayed.

FACTORY RESET.
Restores preset parameters for the program shown on the display.

LCD. Displays program selected or details of the program. While operating, the specific function in progress, the wash time remaining and the dry time remaining are displayed.

ENTER. Press to store modified parameter set point into memory and to advance the display to the next user programmable parameter.

Parameter change buttons.
Press to modify user set points.

PROGRAMS. Microprocessor control allows the user to select from one of five preset programs and two different USER SET programs. Programs are described on the following page and may be altered by the user (see chart on page 5). All set points are stored in memory so cycles may be easily duplicated.

START/CANCEL.
Initiates program selected. Terminates cycle in progress.

Alarm Indicator.
Red light flashes to alert user to fault(s).

DATA. Press to view water temperature, water conductivity and alarms (if any).

SELECT. Press to see details of the selected program.



*The displayed time does not include the time required to heat cold inlet water to the set point temperature.

FlaskScrubber® Vantage™ Series Laboratory Glassware Washers

Flexible Cycle Options

Select from Seven Programs

with the flexibility to change multiple parameters.

RINSE ONLY. One purified or tap water rinse and drain. User may alter number of rinses, number of pure rinses, and add dry time.

PLASTIC. One wash, two rinses and dry sequence. User may alter wash time, wash temperature (from 38 to 60° C), automatic detergent dispense amount, number of rinses, number of pure rinses, automatic rinse aid dispense amount, last rinse temperature (from 38 to 60° C), and dry time.

GLASS. Two washes, two rinses and dry sequence. User may alter steam addition, second wash time, second wash temperature (from 38 to 60° C), automatic detergent dispense amount, number of rinses, number of pure rinses, automatic rinse aid dispense amount, last rinse temperature (from 38 to 60° C), and dry time.

GLASS PLUS. Two washes, four rinses and dry sequence. User may alter steam addition, second wash time, second wash temperature (from 38 to 82° C), automatic detergent dispense

amount, number of rinses, number of pure rinses, automatic rinse aid dispense amount, last rinse temperature (from 38 to 82° C), and dry time.

SCIENCE. Two washes, steam, six rinses and dry sequence. User may alter steam addition, second wash time, second wash temperature (from 38 to 82° C), automatic detergent dispense amount, number of rinses, number of pure rinses, automatic rinse aid dispense amount, last rinse temperature (from 38 to 82° C), and dry time.

USER 1 and 2 SETS. Two washes, two rinses and dry sequence. User selects steam addition, second wash time, second wash temperature (from 38 to 82° C), automatic detergent dispense amount, number of rinses, number of pure rinses, automatic rinse aid dispense amount, last rinse temperature (from 38 to 82° C), and dry time. Two separate programs may be customized and stored in memory.

Flexible Cycle Options

Factory Set Programs and Selectable Set Points

Program	Rinse Only		Plastic		Glass		Glass Plus		Science		User 1 Set		User 2 Set	
	Factory Setting	Selectable Set Points	Factory Setting	Selectable Set Points	Factory Setting	Selectable Set Points	Factory Setting	Selectable Set Points	Factory Setting	Selectable Set Points	Factory Setting	Selectable Set Points	Factory Setting	Selectable Set Points
Wash 1 Time (min.)	—	—	—	—	5	—	5	—	5	—	5	—	5	—
Steam*	—	—	—	—	N	Y or N	N	Y or N	Y	Y or N	N	Y or N	N	Y or N
Wash 2 Time (min.)	—	—	10	10-40	20	10-40	30	10-40	40	10-40	10	10-40	10	10-40
Wash 2 Temp (° C)	—	—	60	38-60	60	38-60	82	38-82	82	38-82	60	38-82	82	38-82
Detergent Dispense (ml)	—	—	20	0-40	20	0-40	20	0-40	20	0-40	20	0-40	20	0-40
Number Rinses**	1	1-6	2	1-6	2	1-6	4	1-6	6	1-6	2	1-6	2	1-6
Number Pure Rinses†	0	0-6	0	0-6	0	0-6	0	0-6	2	0-6	0	0-6	0	0-6
Last Rinse Temp (° C)	—	—	60	38-60	60	38-60	82	38-82	82	38-82	60	38-82	82	38-82
Rinse Aid Dispense (ml)	—	—	0	0-6	0	0-6	0	0-6	0	0-6	0	0-6	0	0-6
Total Wash Time (min.)††	11	11-69	38	28-116	59	39-137	88	39-137	131	39-137	49	39-147	49	39-137
Dry Time (min.)	0	0 or 15-99	15	0 or 15-99	20	0 or 15-99	30	0 or 15-99	40	0 or 15-99	15	0 or 15-99	15	0 or 15-99
Cool Time (min.)	40	—	40	—	40	—	43	—	43	—	40	—	40	—
Total Water Consumed														
Gallons	2.9	2.9-17.4	8.7	5.8-20.3	11.6	8.7-23.2	17.4	8.7-23.2	23.2	8.7-23.2	11.6	8.7-23.2	11.6	8.7-23.2
Liters	11	11-66	33	22-76.8	44	33-88	66	33-88	88	33-88	44	33-88	44	33-88

* Steam time is 10 minutes. ** Each rinse is 4 minutes and uses 2.9 gallons (11 liters) of water.

† Each pure rinse adds 1 minute and uses 2.9 gallons (11 liters) of water. †† Total wash time does not include time required to heat feedwater to set point temperature.

FlaskScrubber® Vantage™ Series Laboratory Glassware Washers

Features & Benefits

Automatic neutralizing rinse solution dispenser. When programmed to dispense from 1 to 6 milliliters, a peristaltic pump automatically draws LabSolutions Neutralizing Acid Rinse or other mildly acidic rinse aid from a one liter bottle during the rinse cycle.

Automatic liquid detergent dispenser. When programmed to dispense from 1 to 40 milliliters, a peristaltic pump automatically draws LabSolutions Low-Foaming Liquid Detergent or other automatic washer liquid detergent from a 3.8 liter bottle during the wash cycle.

Quiet, energy-efficient operation at 62 decibels. Aluminum-backed, sound-deadening insulation and fiberglass blanket absorb noise, optimize internal tank temperature and conserve energy.

Attractive Type 304 brushed stainless steel doors and sides. The back is epoxy-coated steel.

Mirror-bright, Type 304 stainless steel interior. Provides a corrosion-resistant surface that reduces contaminant carry-over during wash and rinse cycles.

Powder epoxy-sealed, hard board top. Repels moisture. It may be removed for under-counter installation.

INCLUDES
Spindle rack with 34 detachable spindles with height-adjustment clips. Large volumes of water stream into the bulb of each flask for high-powered cleaning. Clips may be raised and lowered on the 24 tall spindles to accommodate flasks from 50 ml to 2000 ml. The 10 small spindles hold flasks from 1 ml to 25 ml. Spindles detach easily to customize rack for accessory inserts (sold separately). See pages 26 and 27 for insert selection.

Manual dry or liquid detergent dispenser. If the automatic liquid detergent dispenser is programmed to 0 milliliter, then the dispenser in the door is activated. Detergent compartments release a manually premeasured amount (1.35 ounces or 40 ml). For heavily soiled glassware, the pre-wash cavities in the lid of the detergent cup or stamped in the door may be filled so that detergent is released during the first wash cycle.

Easy installation. To begin operation, tap water, purified water, a drain and single phase electricity are required. For fastest operation, hot tap water is recommended. Straight line plumbing and electrical connections are accessible from the front. Higher built-in drain location prevents self-draining and plumbing errors. The top may be removed for undercounter installation.

Full two year warranty. Is provided against defects in materials and workmanship.

360° rotating lower wash arm and spindle rack. Distribute up to 60 gallons (227 liters) of water per minute.

Steam generator. Produces hot vapor to penetrate and soften dried residue allowing detergent and hot water to work effectively.

Manual dispenser for neutralizing rinse solution. If the automatic liquid detergent dispenser is programmed to 0 milliliter, then the neutralizing rinse solution dispenser in the door is activated. The dispenser holds approximately 170 milliliters, enough for 40 or more cycles.

Up to 6 pure water rinses may be programmed. A built-in purified water pump draws from a storage tank or pressurized system to deliver purified water during final rinses.

Particle filter. One-piece, stainless steel screen filters fine particles, protecting the pump from broken glass and debris.



FlaskScrubber® Vantage™ Series Laboratory Glassware Washers

Features & Benefits



Adjustable Glassware Holders. Secure Erlenmeyer flasks and beakers over the spindles. The vinyl-coated fingers gently cradle the glassware. Two 4-inch and two 6-inch Glassware Holders are included.

Water conductivity monitoring. Sensor measures the level of dissolved inorganics such as calcium and ferrous ions in the tank water, providing validation of water cleanliness, hardness and rinsing thoroughness. It may be used to confirm that detergent, rinse aid and purified water were properly dispensed into the water. Water conductivity is displayed on the LCD and may be transmitted via the RS-232 port.



Viewing window with interior light. The clear tempered safety glass window allows observation of the cycle in progress. A 25-watt interior light illuminates the tank while the door latch is engaged.

Sanitizing high heat. Built-in, 2000-watt heater and thermostat boost interior temperatures to enhance washing, rinsing and drying. With a minimum inlet temperature of 50° F (10° C), the heater elevates water temperature approximately 2.5° F (1.4° C) per minute to a maximum of 180° F (82° C) during the final wash and final rinse cycles, depending on the program.



Built-in, forced air, HEPA-filtered, drying system. A 99.97% efficient HEPA filter traps dust, lint and other particulates in the air. An easily-removable and cleanable prefilter traps larger dirt and debris particles before they reach the HEPA filter, prolonging HEPA filter life. This HEPA-filtered air is blown through the spindles to ensure thoroughly clean, dry glassware inside and out.



RS-232 port. May be used to transmit data such as temperature, cycle phase, water level alarm, water conductivity and voltage alarm to a user-supplied computer or chart recorder.

Rollers on the tank interior accommodate an optional upper rack accessory (sold separately). The optional Upper Spindle Rack holds an additional 24 pieces of narrow-neck labware; Adjustable Height Upper Rack holds many types of labware, especially beakers. See page 26 for ordering information.

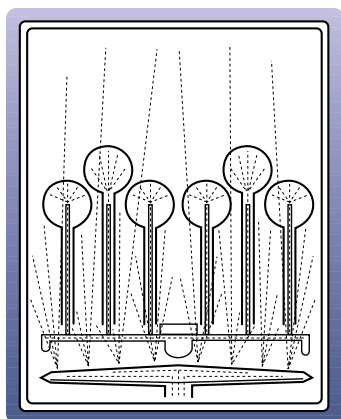


ETL-listed. Washers carry the ETL mark signifying they are certified to UL Standard 3101-1 and CAN/CSA C22.2 No. 1010.1.

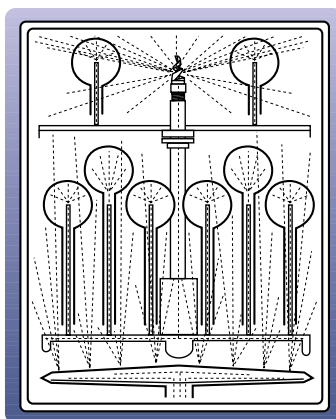


CE Mark. Washers conform to the CE (European Community) requirements for electrical safety and electromagnetic compatibility.

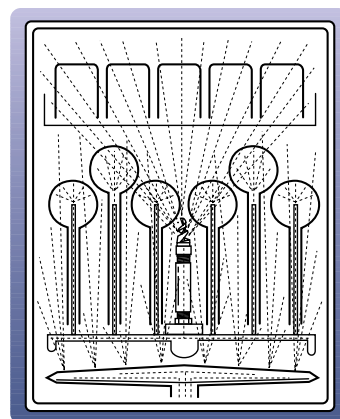
Spray Patterns



Basic Spray Pattern



Spray Pattern with Accessory Upper Spindle Rack and Hub Adapter. See page 26 for Upper Spindle Rack ordering information.



Spray Pattern with Accessory Adjustable Height Upper Rack and Hub Adapter. See page 26 for Adjustable Height Upper Rack ordering information.

FlaskScrubber® Vantage™ Series Glassware Washers

Specifications & Ordering Information

All models feature:

- Type 304, mirror-finish stainless steel tank, wash arm and tower.
- Type 304, brushed stainless steel door and sides.
- Epoxy-coated steel back.
- Two rows of polypropylene rollers in tank for accessory upper rack.
- Fiberglass blanket and aluminum-backed acoustic material for thermal and sound insulation.
- Operation at 62 dB.
- Draw latch to energize electronic controls when locked.
- Made in the U.S.A.
- Injection-molded panel has microprocessor that stores seven preset programs (RINSE ONLY, PLASTIC, GLASS, GLASS PLUS, SCIENCE, USER 1 SET and USER 2 SET). Except for RINSE ONLY and PLASTIC, steam program parameter may be altered by the user. Except for RINSE ONLY, program parameters (WASH 2 time, WASH 2 temperature, detergent dispense amount, number of rinses, number of pure rinses, last rinse temperature, rinse aid dispense amount and dry time) may be altered. For RINSE ONLY, program parameters (number of rinses, number of pure rinses and dry time) may be altered. START/CANCEL button initiates program or terminates a cycle in progress. SELECT PROGRAM button allows selection of the program. DATA button scrolls through displays of water temperature, water conductivity and any faults (low detergent, low rinse agent, low fill, low voltage, high voltage, low water temperature, and defective float switch). SELECT button activates the display to show parameters of the program selected (STEAM, WASH 1 time, WASH 2 time, the NUMBER OF RINSES, the NUMBER OF PURE RINSES, TOTAL WASH time (excluding the time required to heat the inlet water) and DRY TIME. Parameter up/down change buttons modify set points for changeable parameters: WASH 2 time, WASH 2 temperature, detergent dispense, number of rinses, number of pure rinses, last rinse temperature, rinse aid dispense, dry time. LCD displays program selected (RINSE ONLY, PLASTIC, GLASS, GLASS PLUS, SCIENCE, USER 1 SET, USER 2 SET), (steam selection, time in minutes for WASH 1 and WASH 2, number of RINSES and PURE RINSES, time in minutes for TOTAL WASH and DRY) or set points for user programmable parameters. ENTER button stores modified parameters into memory. FACTORY RESET button restores the preset parameters. Red light flashes when fault(s) are detected: low detergent, low rinse agent, low fill, low voltage, high voltage, low water temperature, or defective float switch.
- Automatic liquid detergent dispenser with peristaltic pump and 3.8 liter bottle. Detergent sample is included.
- Automatic rinse aid dispenser with peristaltic pump and 1 liter bottle. Rinse aid sample is included.
- Manual detergent dispenser for powder or liquid detergent. Activated only when the automatic liquid detergent dispenser is programmed for 0 milliliter. Detergent samples are included.
- Manual rinse dispenser activated only when the automatic liquid detergent dispenser is programmed for 0 milliliter. Rinse sample is included.
- Pump with 1/3 hp motor to recirculate up to 60 gallons (227 liters) of water per minute (at 60 Hz) throughout the tank during wash cycle.
- One-piece, stainless steel, fine mesh particle filter.
- Purified water pump to bring pressurized or non-pressurized purified water into the tank for the last two rinses.
- 2000-watt heater with thermostat to boost interior temperature to a sanitizing nominal 180° F (82° C) during final wash and rinse cycles for GLASS PLUS, SCIENCE, USER 1 SET and USER 2 SET programs.



Spindle rack, 20.9" w x 20" d x 11.6" h (53 x 51 x 35 cm), of Type 304 stainless steel. Includes 34 detachable spindles (24 each tall 8.4" x .25" OD and 10 each small 4.5" x .125" OD), 24 large height adjustment clips, 10 small height adjustment clips, 14 nylon plugs, two 4-inch Glassware Holders 4424600 and two 6-inch Glassware Holders 4424800.

Steam generator that produces hot vapor before the WASH 2 cycle (RINSE ONLY and PLASTIC excluded).

- Forced air, drying system with built-in blower.
- R2-232 port for connection to user-supplied computer or recorder.
- Clear tempered safety glass window, 6.3" w x 13.8" h (15.9 x 34.9 cm).
- 25-watt interior light that remains lit while the door latch is engaged.
- Purified water inlet valve with a plastic serrated connector to accommodate a 3/8" ID flexible plastic or rubber hose (hose not included).
- 2 year warranty on parts and labor.

All models conform to the following:

- UL 3101-1/61010-1
- CAN/CSA C22.2 No. 1010.1
- CE Conformity Marking (230 volt models)

All models require (not included):

- Minimum inlet water temperature of 50° F (10° C).
- Recommended inlet water temperature of 120° F (49° C).
- Minimum inlet water pressure of 20 psi.
- Maximum inlet water pressure of 120 psi.
- Minimum purified water pressure of 0 psi.
- Water consumption per fill of 2.9 gallons (11 liters).
- Hot tap water pressure at the washer of 20-120 psi.
- Hot tap water flow of 1.25 gallons (4.7 liters) per minute.
- 3/8" ID copper tubing or flexible hose for connection to the water inlet valve.
- Purified water with supply piping of a minimum 3/8" ID to permit at least 1.25 gallons (4.7 liters) per minute flow.
- Hard wiring to a 20 amp dedicated circuit.
- Drain air gap.
- Drain tubing or pipe 1/2" (1.3 cm) diameter or larger.

Optional companion products and accessories include:

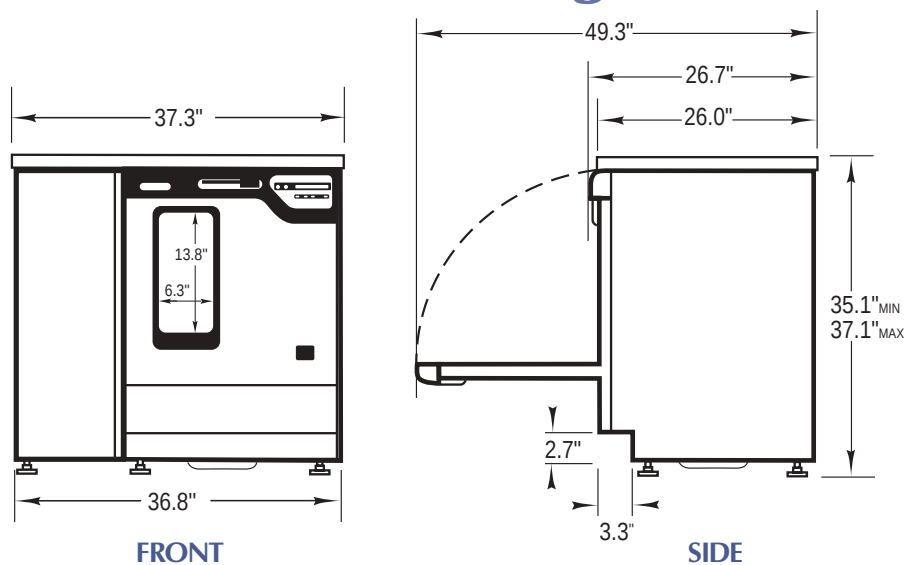
- Base Stand. See page 26.
- Adjustable Height Upper Rack. See page 26.
- Upper Spindle Rack. See page 26.
- Pipet Inserts. See page 27.
- Basket Inserts. See pages 26-27.
- LabSolutions™ Detergents and Rinse. See page 28.
- Laboratory Glassware Carts. See page 28.
- WaterPro® RO Stations and Softeners. See page 29.

Catalog Number	Electrical Requirements	Options	
		High Heat	Window & Light
4540000	230 volts, 50/60 Hz, 12 amps	•	•
4540001	208 volts, 50/60 Hz, 14 amps	•	•

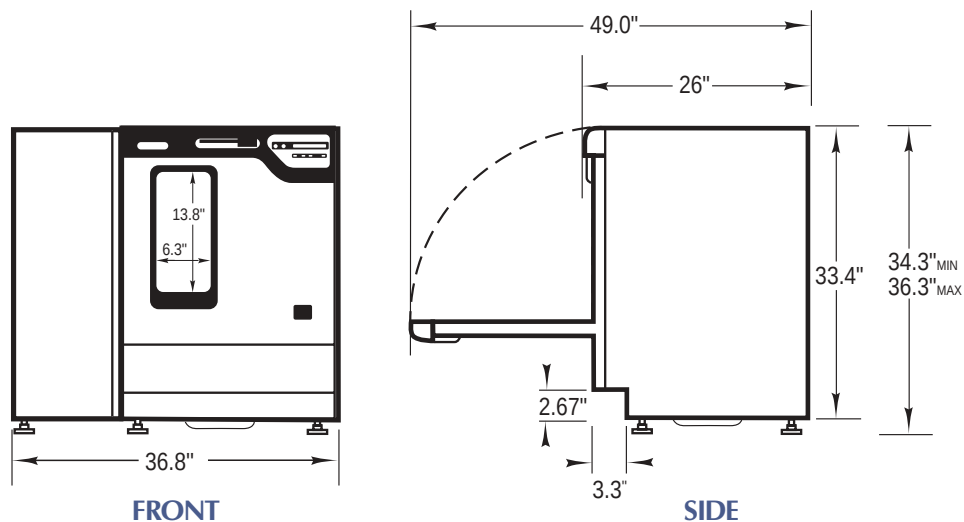
FlaskScrubber® Vantage™ Series Glassware Washers

Dimensional Data

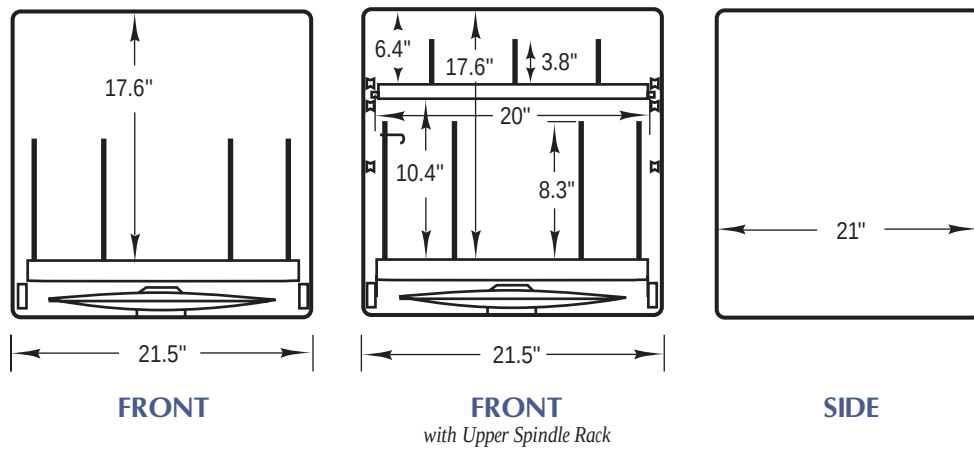
Freestanding



Undercounter



Interior Dimensions



FlaskScrubbers® & SteamScrubbers®

Flexible Cycle Options

Select from seven programs

with the flexibility to change wash and dry cycle duration and number of rinses.

START/CANCEL.
Initiates program selected. Terminates cycle in progress.

SELECT PROGRAM.
Selects one of seven programs, which is shown on the display.

SHIFT PROGRAM.
Changes the display to show parameters of the program selected: WASH 1, WASH 2, NUMBER OF RINSES, TOTAL WASH and DRY.

WASH 1. Displays first wash time in minutes. Time varies depending on program selected.

WASH 2. Displays second wash time in minutes. User may select from 10, 20, 30 or 40 minutes.

NUMBER OF RINSES.
Displays number of rinses. User may select up to 6 rinses.

TOTAL WASH.
Displays total programmed wash time in minutes including drain, fill, wash and rinse times. Or while operating, the total wash time remaining is displayed.

DRY.
Displays programmed dry time in minutes. While operating, the dry time remaining is displayed.

LCD. Displays program selected (RINSE ONLY, PLASTIC, GLASS, GLASS PLUS, SCIENCE, USER 1 SET, USER 2 SET) or details of the program (time in minutes for WASH 1, WASH 2, TOTAL WASH and DRY and number of rinses). While operating, the wash time remaining and the dry time remaining are displayed.

PURE. During program selection, designates purified water (2.9 gallons or 11 liters) for each of the last two rinses. Indicator illuminates amber when this function is activated.

STEAM. During program selection, designates steam to be added before WASH 2 cycle to any program except RINSE ONLY and PLASTIC. Indicator illuminates amber when this function is activated.

PROGRAMS. Microprocessor control allows the user to select from one of five preset programs (RINSE ONLY, PLASTIC, GLASS, GLASS PLUS and SCIENCE) or customize 2 different USER SET programs. All programs may be altered by the user (see charts on page 5). Cycle parameters selected by the user for USER 1 SET and USER 2 SET are stored in memory and can be recalled and repeated indefinitely. Cycle parameter changes made to the preset programs affect the current cycle only.

RINSE ONLY. One purified or tap water rinse and drain. User may alter number of rinses (up to 5) and add dry time.

PLASTIC. One wash, two rinses and dry sequence. User may alter number of rinses (up to 6) and dry time.

GLASS. Two washes, two rinses and dry sequence. User may alter second wash time, number of rinses (up to 6) and dry time.

GLASS PLUS. Two washes, four rinses and dry sequence. User may alter second wash time, number of rinses (up to 6) and dry time.

SCIENCE. Two washes, steam, six rinses and dry sequence. User may alter second wash time, number of rinses and dry time.

USER 1 and 2 SETS. Two washes, two rinses and dry sequence. User selects second wash time, number of rinses (up to 6) and dry time. Two separate programs may be customized and stored in memory.

Program change buttons. Alter the parameter (WASH 2 TIME, NUMBER OF RINSES and DRY TIME) when parameters of the program selected are displayed.

FlaskScrubbers® & SteamScrubbers®

Flexible Cycle Options

Program Time (minutes)—115 Volt, 60 Hz Models

Program	Rinse Only	Plastic	Glass	Glass Plus	Science	User 1 Set	User 2 Set
Heat Setting	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Wash 1	—	10	5	5	5	5	5
Steam	—	—	†	†	10††	†	10††
Wash 2	—	—	20*	30*	40*	10*	10*
Rinse 1	4	2	2	2	2	2	2
Rinse 2	**	4	4	4	4	4	4
Rinse 3	**	**	**	4	4	**	**
Rinse 4	**	**	**	4	4	**	**
Rinse 5	**	**	**	**	4	**	**
Rinse 6	—	**	**	**	4	**	**
Dry	†††	10†††	20†††	30†††	40†††	10†††	10†††
Total Factory Set Time (minutes)	13	43	71	107	153	—	—
Total User Set Time (minutes)	13 to 108	3 to 158	41 to 176	41 to 176	41 to 176	41 to 176	41 to 176
Water Consumption							
Total Water Consumed with Factory Settings***	2.9 gallons (11 liters)	8.7 gallons (33 liters)	11.6 gallons (44 liters)	17.4 gallons (66 liters)	23.2 gallons (88 liters)	11.6 gallons (44 liters)	11.6 gallons (44 liters)

Program Time (minutes)—230 Volt, 50/60 Hz Models

Program	Rinse Only	Plastic	Glass	Glass Plus	Science	User 1 Set	User 2 Set
Heat Setting	Standard	Standard	Standard	High	High	Standard	High
Wash 1	—	10	5	5	5	5	5
Steam	—	—	†	†	10††	†	10††
Wash 2	—	—	20*	30*	40*	10*	10*
Rinse 1	4	2	2	2	2	2	2
Rinse 2	**	4	4	20	20	4	20
Rinse 3	**	**	**	4	4	**	**
Rinse 4	**	**	**	4	4	**	**
Rinse 5	**	**	**	**	4	**	**
Rinse 6	—	**	**	**	4	**	**
Dry	†††	10†††	20†††	30†††	40†††	10†††	10†††
Total Factory Set Time (minutes)	17	48	77	136	184	—	—
Total User Set Time (minutes)	17 to 116	38 to 167	47 to 186	68 to 207	68 to 207	44 to 186	68 to 207
Water Consumption							
Total Water Consumed with Factory Settings***	2.5 gallons (9.5 liters)	7.5 gallons (28.4 liters)	10 gallons (37.9 liters)	15 gallons (56.8 liters)	20 gallons (75.7 liters)	10 gallons (37.9 liters)	10 gallons (37.9 liters)
† Steam adds 10 minutes to total program time †† Steam may be deselected * Select from 10, 20, 30 or 40 minute WASH 2 time ** Add 4 minutes for each additional rinse ††† Select from 0, 10, 20, 30, 40, 50 or 60 minute Dry time *** Add 2.9 gallons (11 liters) for each additional rinse Bold numbers indicate preset times							

FlaskScrubbers®

Features & Benefits

INCLUDES
Spindle rack with 34 detachable spindles with height-adjustment clips. Large volumes of water stream into the bulb of each flask for high-powered cleaning. Clips may be raised and lowered on the 24 tall spindles to accommodate flasks from 50 ml to 2000 ml. The 10 small spindles hold flasks from 1 ml to 25 ml. Spindles detach easily to customize rack for accessory inserts (sold separately). See pages 26 and 27 for insert selection.



Adjustable Glassware Holders. Secure Erlenmeyer flasks and beakers over the spindles. The vinyl-coated fingers gently cradle the glassware. Two 4-inch and two 6-inch Glassware Holders are included.



ETL-listed. Washers carry the ETL mark signifying they are certified to UL Standard 3101-1 and CAN/CSA C22.2 No. 1010.1.



CE Mark. Washers conform to the CE (European Community) requirements for electrical safety and electromagnetic compatibility.



Patented vacuum drying system. Draws moisture from inside the flasks, replacing it with hot, dry air.

Melamine-covered, high-density particle board top. Repels moisture (mobile and freestanding models).

Mirror-bright, Type 304 stainless steel interior. Provides a corrosion-resistant surface that reduces contaminant carry-over during wash and rinse cycles.

Easy installation. To begin operation, hot tap water, purified water, a drain and electricity are required. Mobile models feature a quick-disconnect attachment for tap water and drain. Undercounter and freestanding models have straight line plumbing and electrical connections accessible from the front. Higher built-in drain location prevents self-draining and plumbing errors.

Quiet, energy efficient operation at 62 decibels.

Aluminum-backed, sound-deadening insulation and fiberglass blanket absorb noise, optimize internal tank temperature and conserve energy.

Rollers on the tank interior accommodate an optional upper rack accessory (sold separately). The optional Upper Spindle Rack holds an additional 24 pieces of narrow-neck labware; Adjustable Height Upper Rack holds many types of labware, especially beakers. See page 26 for ordering information.

Dispenser for neutralizing solution. Allows manual addition of mildly acidic rinse aid to alter pH and eliminate alkaline detergent carry-over.

Attractive Type 304 brushed stainless steel door. Mobile and free-standing models also have brushed stainless steel sides and epoxy-coated steel backs.



360° rotating lower wash arm and spindle rack. Distribute up to 60 gallons (227 liters) of water per minute.

Full two year warranty. Is provided against defects in materials and workmanship.



Exclusive feature

Dry or liquid detergent dispenser. Releases a manually premeasured amount (1.35 ounces or 40 ml) ensuring clean labware.

Particle filter. One-piece, stainless steel screen filters fine particles, protecting the pump from broken glass and debris.

Draw latch. Securely locks the door while energizing the electronic controls.

Steam generator. Produces hot vapor to penetrate and soften dried residue allowing detergent and hot water to work effectively.

Built-in purified water pump. Draws from a storage tank or pressurized system to deliver purified water during final two rinses.



Built-in heater. Boosts water and glassware temperatures to enhance washing and drying results by applying heat during all cycles. Models for operation on 115 volts have 1200 watts of heating power; 230 volt models have 2000 watts. With a minimum inlet temperature of 120° F (49° C), the heater elevates water temperature approximately 20° F (11° C) on 115 volt models and 60° F (33° C) on 230 volt models.



Made in the U.S.A.

FlaskScrubbers®

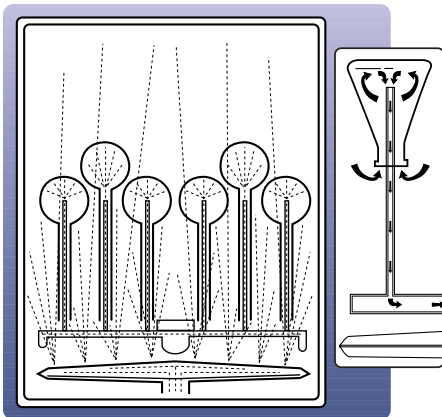
Options



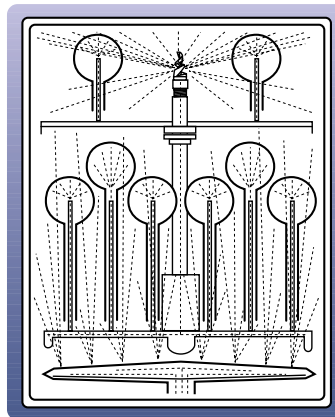
Viewing window with interior light. Models with built-in viewing window and interior light are available as standard options. The clear tempered safety glass window allows observation of the cycle in progress. A 25-watt interior light illuminates the tank while the door latch is engaged.

Sanitizing high heat. Higher temperature loosens stubborn lipid-based residues for cleaner, sanitized glassware. Models for operation on 230 volts, 50/60 Hz include a high heat option. A 2000-watt heater and thermostat allow interior temperatures to reach a nominal 180° F (82° C) with a minimum inlet temperature of 120° F (49° C) during the second wash and rinse cycle. High heat is automatically activated when GLASS PLUS, SCIENCE or USER 2 SET is selected.

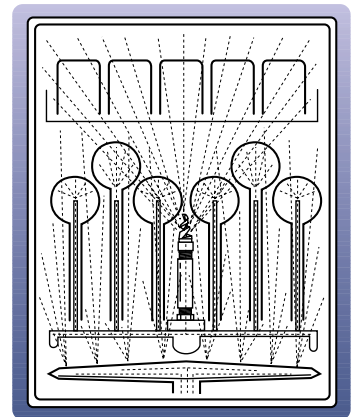
Spray Patterns



Basic Spray Pattern
Inset: Vacuum Drying System

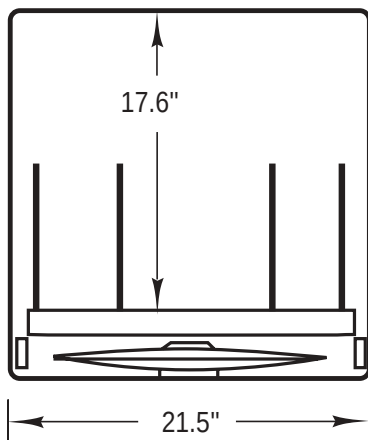


Spray Pattern with Accessory Upper Spindle Rack and Hub Adapter. See page 26 for Upper Spindle Rack ordering information.

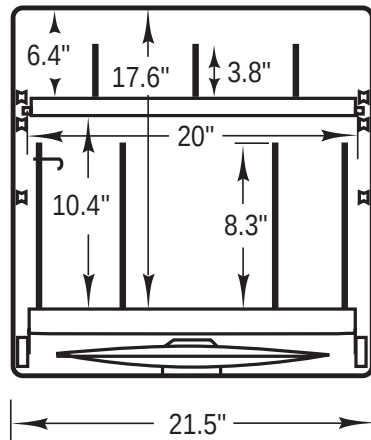


Spray Pattern with Accessory Adjustable Height Upper Rack and Hub Adapter. See page 26 for Adjustable Height Upper Rack ordering information.

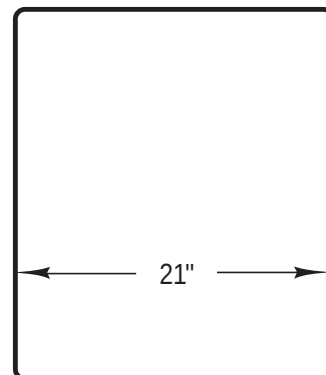
Interior Dimensions



FRONT



FRONT
with Upper Spindle Rack



SIDE

FlaskScrubbers®

General Specifications

All models feature:

- Type 304, mirror-finish stainless steel tank, wash arm and tower.
- Type 304, brushed stainless steel door.
- Two rows of polypropylene rollers in tank for accessory upper rack.
- Fiberglass blanket and aluminum-backed acoustic material for thermal and sound insulation.
- Operation at 62 dB.
- Draw latch to energize electronic controls when locked.
- Made in the U.S.A.
- Injection molded control panel with microprocessor that stores seven preset programs (RINSE ONLY, PLASTIC, GLASS, GLASS PLUS, SCIENCE, USER 1 SET and USER 2 SET). Except for RINSE ONLY, program parameters (WASH 2 time, number of rinses and DRY time) may be altered. For RINSE ONLY, program parameters (number of rinses up to 5 and DRY time) may be altered. START/CANCEL button initiates the program selected or terminates the cycle in progress. SELECT PROGRAM allows selection of the program. SHIFT button activates the display to show parameters of the selected program. Program change buttons alter the parameter (second wash time, number of rinses and dry time) when parameters of the selected program are displayed. LCD displays selected program or details of the program (WASH 1 time, WASH 2 time, NUMBER OF RINSES, TOTAL WASH time and DRY time). PURE button selects purified water for the last two rinses. STEAM button selects steam to be added before the WASH 2 cycle. Amber indicator lights illuminate next to PURE and STEAM buttons when selected.
- Manual detergent dispenser for powder or liquid detergent. Detergent samples are included.
- Manual rinse solution dispenser. Rinse sample is included.
- Pump with 1/3 hp motor to recirculate up to 60 gallons (227 liters) of water per minute (at 60 Hz) throughout the tank during wash cycle.
- One-piece, stainless steel, fine mesh particle filter.
- Purified water pump to bring pressurized or non-pressurized purified water into the tank for the last two rinses.
- Spindle rack, 20.9" w x 20" d x 11.6" h (53 x 51 x 35 cm), of Type 304 stainless steel. Includes 34 detachable spindles (24 each tall 8.4" x .25" OD and 10 each small 4.5" x .125" OD), 24 large height adjustment clips, 10 small height adjustment clips, 14 nylon plugs, two 4-inch Glassware Holders 4424600 and two 6-inch Glassware Holders 4424800.



- Steam generator that produces hot vapor before the WASH 2 cycle (RINSE ONLY and PLASTIC excluded).
- Vacuum drying system to draw moist air from glassware through the spindles and drying manifold.
- Purified water inlet valve with a plastic serrated connector to accommodate a 3/8" ID flexible plastic or rubber hose (hose not included).
- 2 year warranty on parts and labor.

All models conform to the following:

- UL 3101-1/61010-1
- CAN/CSA C22.2 No. 1010.1
- CE Conformity Marking (230 volt models)

All models require (not included):

- Minimum inlet water temperature of 120° F (49° C).
- Recommended inlet water temperature of 140° F (60° C).
- Minimum inlet water pressure of 20 psi.
- Maximum inlet water pressure of 120 psi.
- Minimum purified water pressure of 0 psi.
- Water consumption per fill of 2.9 gallons (11 liters).
- Hot tap water pressure at the washer of 20-120 psi.
- Hot tap water flow of 1.25 gallons (4.7 liters) per minute.
- 3/8" ID copper tubing or flexible hose for connection to the water inlet valve.
- Purified water with supply piping of a minimum 3/8" ID to permit at least 1.25 gallons (4.7 liters) per minute flow.

Optional companion products and accessories include:

- Base Stand. See page 26.
- Adjustable Height Upper Rack. See page 26.
- Upper Spindle Rack. See page 26.
- Pipet Inserts. See page 27.
- Basket Inserts. See pages 26-27.
- LabSolutions™ Detergents and Rinse. See page 28.
- Laboratory Glassware Carts. See page 28.
- WaterPro® RO Stations and Softeners. See page 29.

FlaskScrubber® Undercounter Glassware Washers

Specifications & Ordering Information

All undercounter models feature:

- General specifications described on page 14.
- Four leveling feet.
- 3/8" IPS inlet fitting for hot tap water connection.
- Factory-installed drain hose and band clamp.
- Exterior dimensions: 24.0" w x 26.4" d x 34.3" h minimum to 36.3" h maximum (60.9 x 67.1 x 87.1 cm minimum to 92.1 cm maximum).
- Shipping weight 142 lbs. (64 kg).

All 115 volt models feature:

- 1200-watt heater to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the sump heater elevates water temperature approximately 20° F (11° C).
- Operation on 115 volts, 60 Hz, 16 amps.

All 230 volt models feature:

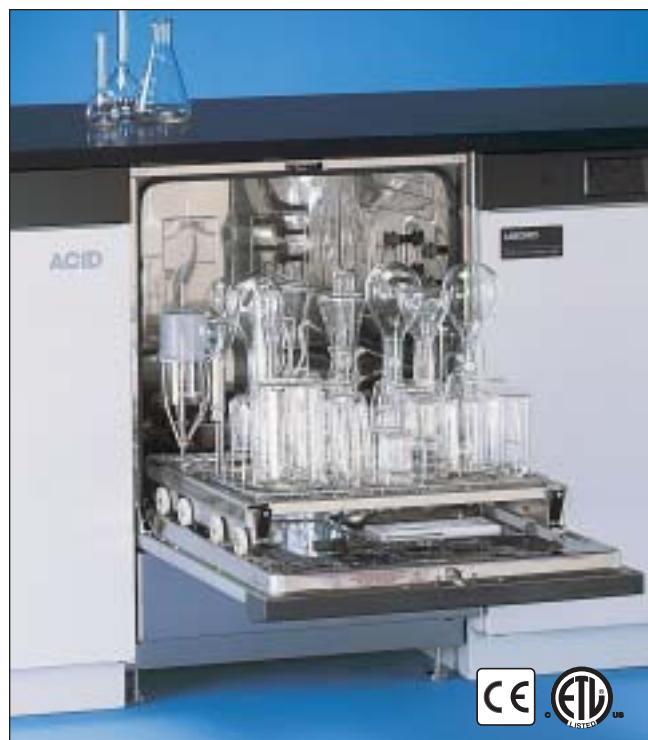
- 2000-watt heater with thermostat to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the heater elevates water temperature approximately 20° F (11° C) when PLASTIC, GLASS or USER 1 SET is selected, or approximately 60° F (33° C) when GLASS PLUS, SCIENCE or USER 2 SET is selected.
- Operation on 230 volts, 50/60 Hz, 13 amps.
- CE Conformity marking.

Models 4420310 and 4420311 feature:

- Clear tempered safety glass window, 6.3" w x 13.8" h (15.9 x 34.9 cm).
- 25-watt interior light that remains lit while the door latch is engaged.

All models require (not included):

- Requirements described on page 14.
- Hard wiring to a 20 amp dedicated circuit.
- Drain air gap.
- Drain tubing or pipe 1/2" (1.3 cm) diameter or larger.



Catalog Number	Electrical Requirements	Options	
		High Heat	Window & Light
4420300	115 volts, 60 Hz, 16 amps		
4420301	230 volts, 50/60 Hz, 13 amps	•	
4420310	115 volts, 60 Hz, 16 amps		•
4420311	230 volts, 50/60 Hz, 13 amps	•	•

FlaskScrubber® Freestanding Glassware Washers

Specifications & Ordering Information

All freestanding models feature:

- General specifications described on page 14.
- Black melamine-covered, high-density particle board top.
- Type 304 stainless steel sides.
- Epoxy-coated steel back.
- Four leveling feet.
- 3/8" IPS inlet fitting for hot tap water connection.
- Factory-installed drain hose and band clamp.
- Exterior dimensions: 24.5" w x 26.7" d x 35.1" h minimum to 37.1" h maximum (62.2 x 67.8 x 89.2 cm minimum to 94.2 cm maximum).
- Shipping weight 189 lbs. (86 kg).

All 115 volt models feature:

- 1200-watt heater to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the sump heater elevates water temperature approximately 20° F (11° C).
- Operation on 115 volts, 60 Hz, 16 amps.

All 230 volt models feature:

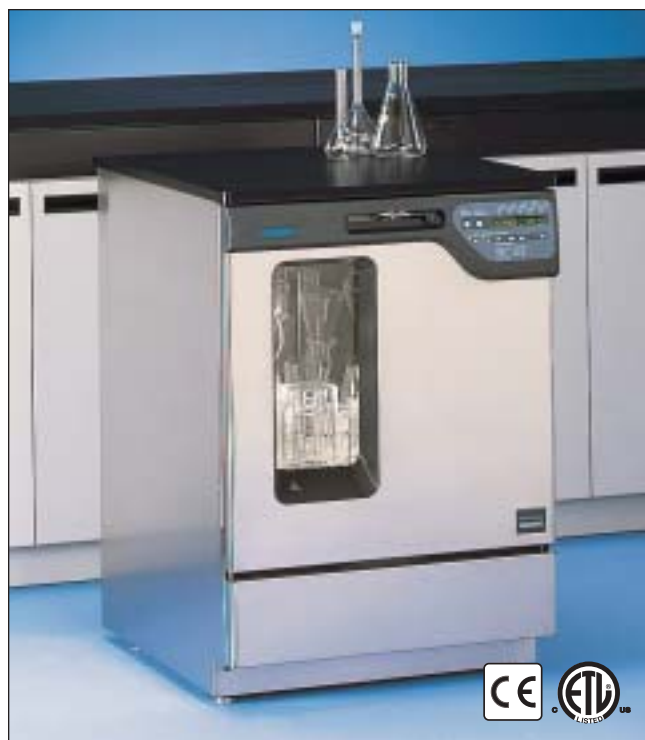
- 2000-watt heater with thermostat to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the heater elevates water temperature approximately 20° F (11° C) when PLASTIC, GLASS or USER 1 SET is selected, or approximately 60° F (33° C) when GLASS PLUS, SCIENCE or USER 2 SET is selected.
- Operation on 230 volts, 50/60 Hz, 13 amps.
- CE Conformity marking.

Models 4420410 and 4420411 feature:

- Clear tempered safety glass window, 6.3" w x 13.8" h (15.9 x 34.9 cm).
- 25-watt interior light that remains lit while the door latch is engaged.

All models require (not included):

- Requirements described on page 14.
- Hard wiring to a 20 amp dedicated circuit.
- Drain air gap.
- Drain tubing or pipe 1/2" (1.3 cm) diameter or larger.



Catalog Number	Electrical Requirements	Options	
		High Heat	Window & Light
4420400	115 volts, 60 Hz, 16 amps		
4420401	230 volts, 50/60 Hz, 13 amps	•	
4420410	115 volts, 60 Hz, 16 amps		•
4420411	230 volts, 50/60 Hz, 13 amps	•	•

FlaskScrubber® Mobile Glassware Washers

Specifications & Ordering Information

All mobile models feature:

- General specifications described on page 14.
- Black melamine-covered, high-density particle board top.
- Type 304 stainless steel sides.
- Epoxy-coated steel back.
- Four 2-inch diameter rubber casters.
- Quick-disconnect attachment for inlet water and drain on top of washer.
- Two aerator adapters for connection to standard 55/64"-27 male and 15/16"-27 female laboratory faucets.
- Exterior dimensions: 24.5" w x 26.7" d x 37.0" h (62.2 x 67.8 x 93.8 cm).
- Shipping weight 189 lbs. (86 kg).

All 115 volt models feature:

-  1200-watt heater to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the sump heater elevates water temperature approximately 20° F (11° C).
- 5'4" (163 cm) grounded power cord with 20 amp plug.
- Operation on 115 volts, 60 Hz, 16 amps.

All 230 volt models feature:

-  2000-watt heater with thermostat to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the heater elevates water temperature approximately 20° F (11° C) when PLASTIC, GLASS or USER 1 SET is selected, or approximately 60° F (33° C) when GLASS PLUS, SCIENCE or USER 2 SET is selected.
- 5'4" (163 cm) grounded power cord. **A 20 amp plug is required.**
- Operation on 230 volts, 50/60 Hz, 13 amps.
- CE Conformity marking.

Models 4420010 and 4420011 feature:

- Clear tempered safety glass window, 6.3" w x 13.8" h (15.9 x 34.9 cm).
- 25-watt interior light that remains lit while the door latch is engaged.

All models require (not included):

- Requirements described on page 14.
- 20 amp dedicated circuit.
- Electrical plug (230 volt models).



Catalog Number	Electrical Requirements	Options	
		High Heat	Window & Light
4420000	115 volts, 60 Hz, 16 amps		
4420001	230 volts, 50/60 Hz, 13 amps	•	
4420010	115 volts, 60 Hz, 16 amps		•
4420011	230 volts, 50/60 Hz, 13 amps	•	•

SteamScrubbers®

Features & Benefits

Easy installation. To begin operation, hot tap water, purified water, a drain and electricity are required. Mobile models feature a quick-disconnect attachment for tap water and drain. Undercounter and freestanding models have straight line plumbing and electrical connections accessible from the front. Higher built-in drain location prevents self-draining and plumbing errors.



Upper and lower rotating wash arms with adjustable height center tower. Distribute up to 60 gallons (227 liters) of water per minute. Wash arms clean with a 360° revolving motion. The lower arm pumps water upward through the bottom rack while the upper arm propels water down across glassware below and up through the top rack. The center telescoping tower has a locking pin that adjusts the upper arm to 2 positions to accommodate various glassware heights.



Built-in, forced air, drying system. Dries glassware with hot, dry air.

Melamine-covered, high-density particle board top. Repels moisture (mobile and freestanding models).

Mirror-bright, Type 304 stainless steel interior.

Provides a corrosion-resistant surface that reduces contaminant carry-over during wash and rinse cycles.

Steam generator.

Produces hot vapor to penetrate and soften dried residue allowing detergent and hot water to work effectively.

Quiet, energy efficient operation at 62 decibels.

Aluminum-backed, sound-deadening insulation and fiberglass blanket absorb noise, optimize internal tank temperature and conserve energy.

Stainless steel top and bottom racks.

Accommodate a variety of accessory inserts and the broadest range of glassware. Two rows of rollers on the sides of the washer's interior guide the top rack and allow placement of the rack in two positions to accommodate various glassware heights. See pages 26 and 27 for insert selection.

Dispenser for neutralizing solution.

Allows addition of mildly acidic rinse aid to alter pH and eliminate alkaline detergent carry-over.

Draw latch. Securely locks the door while energizing the electronic controls.



ETL-listed. Washers carry the ETL mark signifying they are certified to UL Standard 3101-1 and CAN/CSA C22.2 No. 1010.1.



CE Mark. Washers conform to the CE (European Community) requirements for electrical safety and electromagnetic compatibility.

Built-in purified water pump. Draws from a storage tank or pressurized system to deliver purified water during final two rinses.

Full two year warranty.

Is provided against defects in materials and workmanship.



Exclusive feature

Dry or liquid detergent dispenser. Releases a manually premeasured amount (1.35 ounces or 40 ml) ensuring clean labware.

Particle filter. One-piece, stainless steel screen filters fine particles, protecting the pump from broken glass and debris.

Attractive Type 304 brushed stainless steel door. Mobile and freestanding models also have brushed stainless steel sides and epoxy-coated steel backs.



Built-in heater. Boosts water and glassware temperatures to enhance washing and drying results by applying heat during all cycles. Models for operation on 115 volts have 1200 watts of heating power; 230 volt models have 2000 watts. With a minimum inlet temperature of 120° F (49° C), the sump heater elevates water temperature approximately 20° F (11° C) on 115 volt models and 60° F (33° C) on 230 volt models.



Made in the U.S.A.

SteamScrubbers®

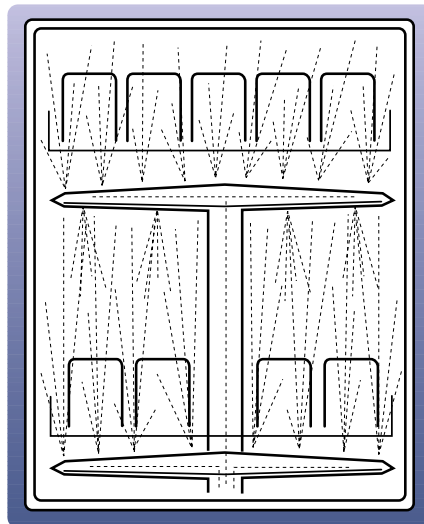
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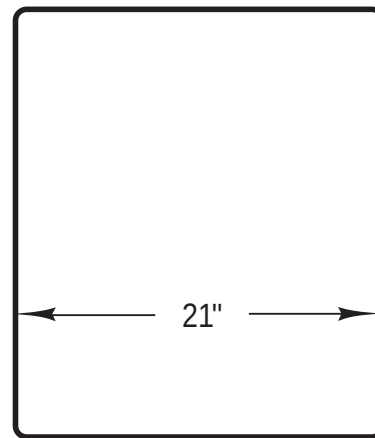
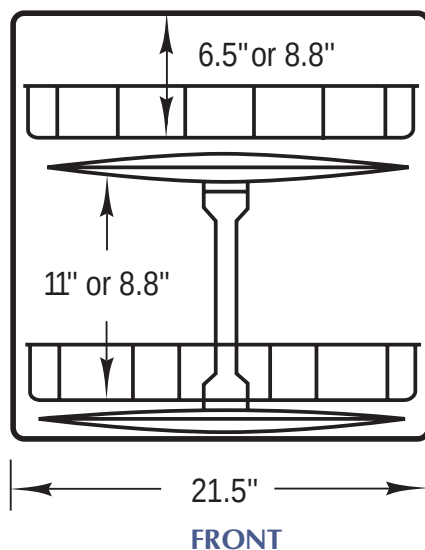
Viewing window with interior light. Models with built-in viewing window and interior light are available as standard options. The clear tempered safety glass window allows observation of the cycle in progress. A 25-watt interior light illuminates the tank while the door latch is engaged.

Sanitizing high heat. Higher temperature loosens stubborn lipid-based residues for cleaner, sanitized glassware. Models for operation on 230 volts, 50/60 Hz include a high heat option. A 2000-watt heater and thermostat allow interior temperatures to reach a nominal 180° F (82° C) with a minimum inlet temperature of 120° F (49° C) during the second wash and rinse cycle. High heat is automatically activated when GLASS PLUS, SCIENCE or USER 2 SET is selected.

Spray Pattern



Interior Dimensions



SteamScrubbers®

General Specifications

All models feature:

- Type 304, mirror-finish stainless steel tank, wash arms and adjustable-height center tower.
- Type 304, brushed stainless steel door.
- Two rows of polypropylene rollers in tank for upper rack adjustment.
- Fiberglass blanket and aluminum-backed acoustic material for thermal and sound insulation.
- Operation at 62 dB.
- Draw latch to energize electronic controls when locked.
- Made in the U.S.A.
- Injection-molded control panel with microprocessor that stores five factory preset programs (RINSE ONLY, PLASTIC, GLASS, GLASS PLUS, SCIENCE, USER 1 SET and USER 2 SET). Except for RINSE ONLY, program parameters (WASH 2 time, number of rinses and DRY time) may be altered. For RINSE ONLY, program parameters (number of rinses up to 5 and DRY time) may be altered. START/CANCEL button initiates the program selected or terminates the cycle in progress. SELECT PROGRAM allows selection of the program. SHIFT button activates the display to show parameters of the selected program. Program change buttons alter the parameter (second wash time, number of rinses and dry time) when parameters of the selected program are displayed. LCD displays selected program or details of the program (WASH 1 time, WASH 2 time, NUMBER OF RINSES, TOTAL WASH time and DRY time). PURE button selects purified water for the last two rinses. STEAM button selects steam to be added before the WASH 2 cycle. Amber indicator lights illuminate next to PURE and STEAM buttons when selected.
- Manual detergent dispenser for powder or liquid detergent. Detergent samples are included.
- Manual rinse solution dispenser. Rinse sample is included.
- Pump with 1/3 hp motor to recirculate up to 60 gallons (227 liters) of water per minute (at 60 Hz) throughout the tank during wash cycle.
- One-piece, stainless steel, fine mesh particle filter.
- Purified water pump to bring pressurized or non-pressurized purified water into the tank for the last two rinses.



- Type 304 stainless steel Upper Rack 4401102 and Bottom Rack 4401202 included. Basket inserts sold separately.
- Steam generator that produces hot vapor before the WASH 2 cycle (RINSE ONLY and PLASTIC excluded).
- Purified water inlet valve with a plastic serrated connector to accommodate a 3/8" ID flexible plastic or rubber hose (hose not included).
- 2 year warranty on parts and labor.

All models conform to the following:

- UL 3101-1/61010-1
- CAN/CSA C22.2 No. 1010.1
- CE Conformity Marking (230 volt models)

All models require (not included):

- Minimum inlet water temperature of 120° F (49° C).
- Recommended inlet water temperature of 140° F (60° C).
- Minimum inlet water pressure of 20 psi.
- Maximum inlet water pressure of 120 psi.
- Minimum purified water pressure of 0 psi.
- Water consumption per fill of 2.9 gallons (11 liters).
- Hot tap water pressure at the washer of 20-120 psi.
- Hot tap water flow of 1.25 gallons (4.7 liters) per minute.
- 3/8" ID copper tubing or flexible hose for connection to the water inlet valve.
- Purified water with supply piping of a minimum 3/8" ID to permit at least 1.25 gallons (4.7 liters) per minute flow.

Optional companion products and accessories include:

- Base Stand. See page 26.
- Adjustable Height Upper Rack. See page 26.
- Basket Inserts. See pages 26-27.
- LabSolutions™ Detergents and Rinse. See page 28.
- Laboratory Glassware Carts. See page 28.
- WaterPro® RO Stations and Softeners. See page 29.

SteamScrubber® Undercounter Glassware Washers

Specifications & Ordering Information

All undercounter models feature:

- General specifications described on page 20.
- Four leveling feet.
- 3/8" IPS inlet fitting for hot tap water connection.
- Factory-installed drain hose and band clamp.
- Exterior dimensions: 24.0" w x 26.4" d x 34.3" h minimum to 36.3" h maximum (60.9 x 67.1 x 87.1 cm minimum to 92.1 cm maximum).
- Shipping weight 142 lbs. (64 kg).

All 115 volt models feature:

-  1200-watt heater to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the sump heater elevates water temperature approximately 20° F (11° C).
- Operation on 115 volts, 60 Hz, 16 amps.

All 230 volt models feature:

-  2000-watt heater with thermostat to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the heater elevates water temperature approximately 20° F (11° C) when PLASTIC, GLASS or USER 1 SET is selected, or approximately 60° F (33° C) when GLASS PLUS, SCIENCE or USER 2 SET is selected.
- Operation on 230 volts, 50/60 Hz, 13 amps.
- CE Conformity marking.

Models 4400310 and 4400311 feature:

- Clear tempered safety glass window, 6.3" w x 13.8" h (15.9 x 34.9 cm).
- 25-watt interior light that remains lit while the door latch is engaged.

All models require (not included):

- Requirements described on page 20.
- Hard wiring to a 20 amp dedicated circuit.
- Drain air gap.
- Drain tubing or pipe 1/2" (1.3 cm) diameter or larger.



Catalog Number	Electrical Requirements	Options	
		High Heat	Window & Light
4400300	115 volts, 60 Hz, 16 amps		
4400301	230 volts, 50/60 Hz, 13 amps	•	
4400310	115 volts, 60 Hz, 16 amps		•
4400311	230 volts, 50/60 Hz, 13 amps	•	•

SteamScrubber® Freestanding Glassware Washers

Specifications & Ordering Information

All freestanding models feature:

- General specifications described on page 20.
- Black melamine-covered, high-density particle board top.
- Type 304 stainless steel sides.
- Epoxy-coated steel back.
- Four leveling feet.
- 3/8" IPS inlet fitting for hot tap water connection.
- Factory-installed drain hose and band clamp.
- Exterior dimensions: 24.5" w x 26.7" d x 35.1" h minimum to 37.1" h maximum (62.2 x 67.8 x 89.2 cm minimum to 94.2 cm maximum).
- Shipping weight 189 lbs. (86 kg).

All 115 volt models feature:

- 1200-watt heater to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the sump heater elevates water temperature approximately 20° F (11° C).
- Operation on 115 volts, 60 Hz, 16 amps.

All 230 volt models feature:

- 2000-watt heater with thermostat to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the heater elevates water temperature approximately 20° F (11° C) when PLASTIC, GLASS or USER 1 SET is selected, or approximately 60° F (33° C) when GLASS PLUS, SCIENCE or USER 2 SET is selected.
- Operation on 230 volts, 50/60 Hz, 13 amps.
- CE Conformity marking.

Models 4400410 and 4400411 feature:

- Clear tempered safety glass window, 6.3" w x 13.8" h (15.9 x 34.9 cm).
- 25-watt interior light that remains lit while the door latch is engaged.

All models require (not included):

- Requirements described on page 20.
- Hard wiring to a 20 amp dedicated circuit.
- Drain air gap.
- Drain tubing or pipe 1/2" (1.3 cm) diameter or larger.



Catalog Number	Electrical Requirements	Options	
		High Heat	Window & Light
4400400	115 volts, 60 Hz, 16 amps		
4400401	230 volts, 50/60 Hz, 13 amps	•	
4400410	115 volts, 60 Hz, 16 amps		•
4400411	230 volts, 50/60 Hz, 13 amps	•	•

SteamScrubber® Mobile Glassware Washers

Specifications & Ordering Information

All mobile models feature:

- General specifications described on page 20.
- Black melamine-covered, high-density particle board top.
- Type 304 stainless steel sides.
- Epoxy-coated steel back.
- Four 2-inch diameter rubber casters.
- Quick-disconnect attachment for inlet water and drain on top of washer.
- Two aerator adapters for connection to standard 55/64"-27 male and 15/16"-27 female laboratory faucets.
- Exterior dimensions: 24.5" w x 26.7" d x 37.0" h (62.2 x 67.8 x 93.8 cm).
- Shipping weight 189 lbs. (86 kg).

All 115 volt models feature:

-  1200-watt heater to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the sump heater elevates water temperature approximately 20° F (11° C).
- 5'4" (163 cm) grounded power cord with 20 amp plug.
- Operation on 115 volts, 60 Hz, 16 amps.

All 230 volt models feature:

-  2000-watt heater with thermostat to boost water and glassware temperatures during washing and drying. With a minimum inlet temperature of 120° F (49° C), the heater elevates water temperature approximately 20° F (11° C) when PLASTIC, GLASS or USER 1 SET is selected, or approximately 60° F (33° C) when GLASS PLUS, SCIENCE or USER 2 SET is selected.
- 5'4" (163 cm) grounded power cord. **A 20 amp plug is required.**
- Operation on 230 volts, 50/60 Hz, 13 amps.
- CE Conformity marking

Models 4400010 and 4400011 feature:

- Clear tempered safety glass window, 6.3" w x 13.8" h (15.9 x 34.9 cm), located in the door.
- 25-watt interior light that remains lit while the door latch is engaged.

All models require (not included):

- Requirements described on page 20.
- 20 amp dedicated circuit.
- Electrical plug (230 volt models).

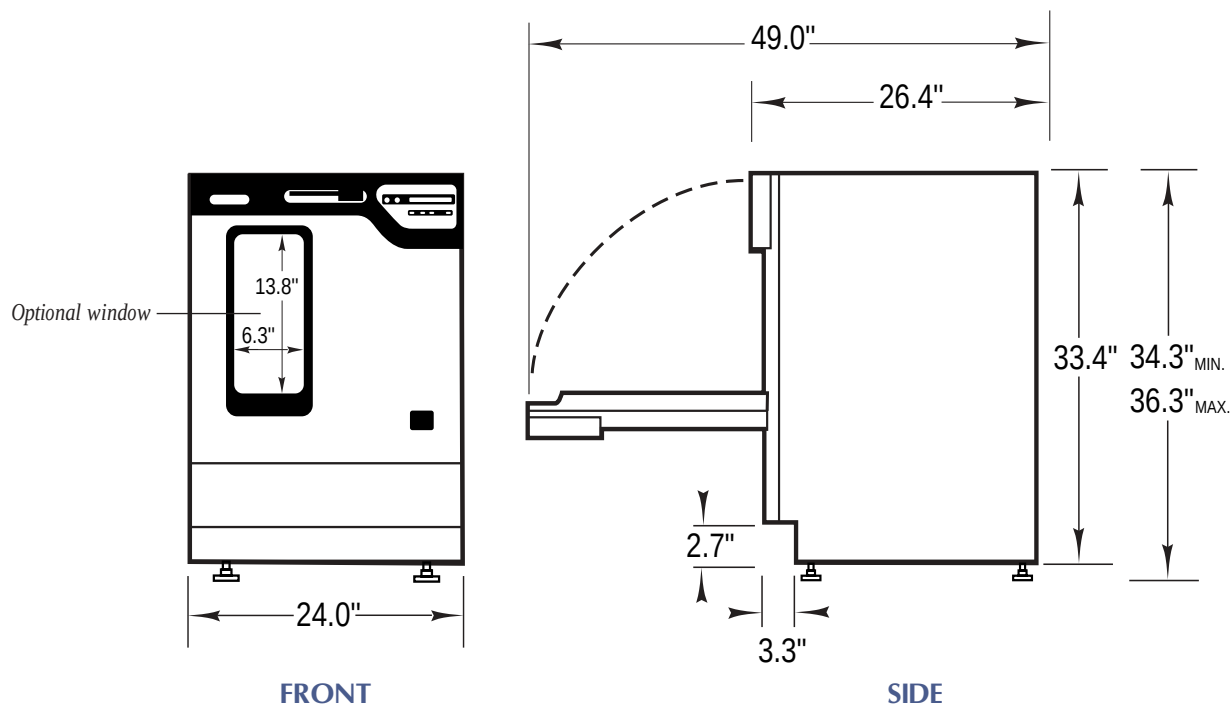


Catalog Number	Electrical Requirements	Options	
		High Heat	Window & Light
4400000	115 volts, 60 Hz, 16 amps		
4400001	230 volts, 50/60 Hz, 13 amps	•	
4400010	115 volts, 60 Hz, 16 amps		•
4400011	230 volts, 50/60 Hz, 13 amps	•	•

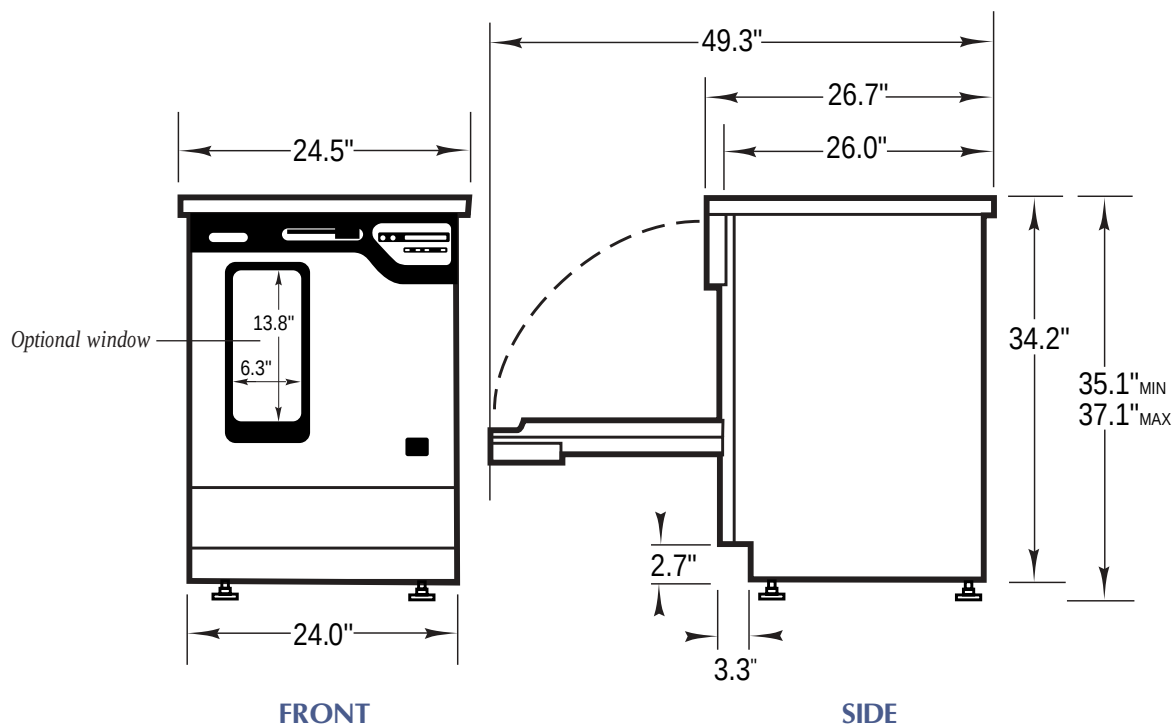
FlaskScrubbers® & SteamScrubbers®

Dimensional Data

Undercounter Models 4420300, 4420301, 4420310, 4420311, 4400300, 4400301, 4400310, 4400311



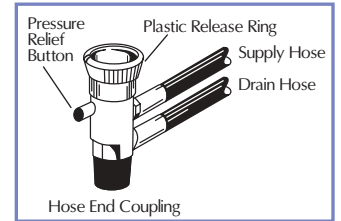
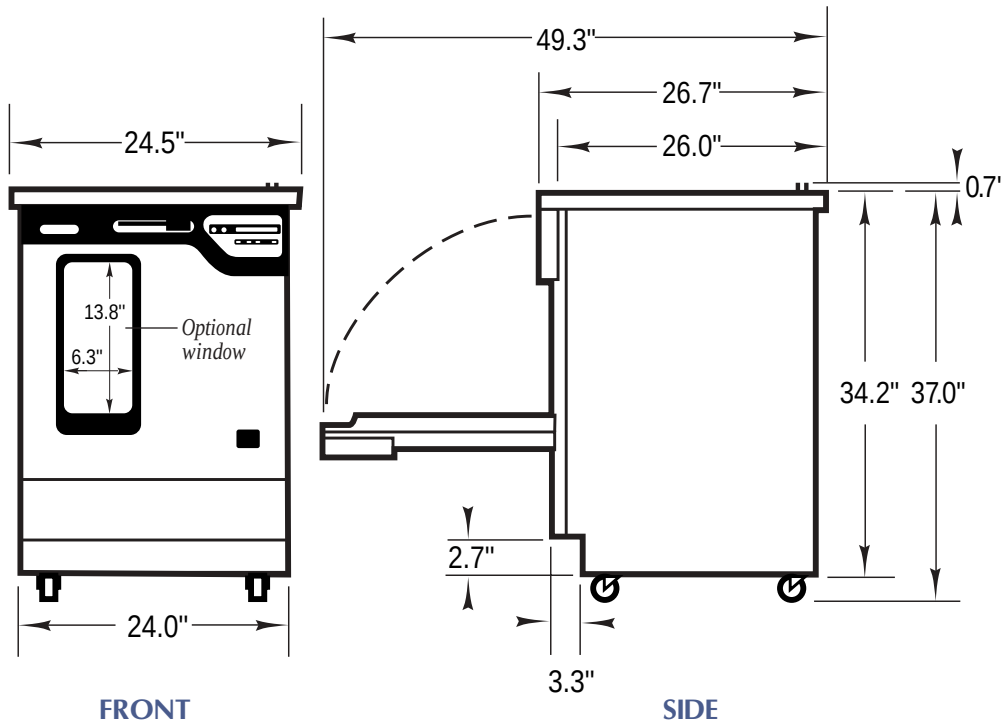
Freestanding Models 4420400, 4420401, 4420410, 4420411, 4400400, 4400401, 4400410, 4400411



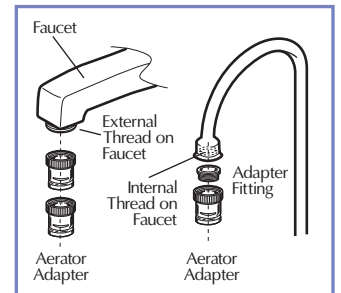
FlaskScrubbers® & SteamScrubbers®

Dimensional Data

Mobile Models 4420000, 4420001, 4420010, 4420011, 4400000, 4400001, 4400010, 4400011



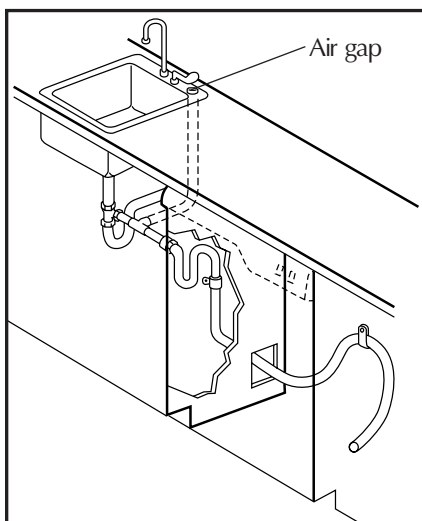
Quick-Disconnect Attachment



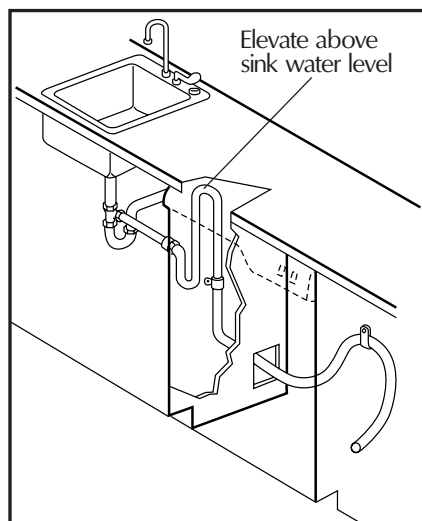
Aerator Adapters

Fit standard 55/64"-27 male and 15/16"-27 female faucets.

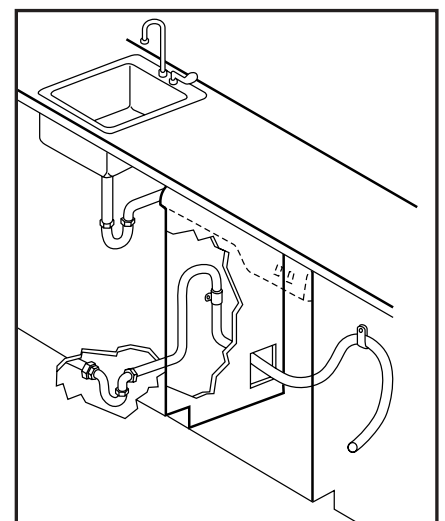
Typical Plumbing Connections for Undercounter Model Series 44203 & 44003 & Freestanding Model Series 45400, 44204, 44004



Installation with air gap and connection to sink drain



Installation without air gap and connection to sink drain



Installation with connection to floor drain

All Washer Models

Accessories



Base Stands

Elevate washer 17" (43.2 cm) for washer loading convenience and storage of supplies. Type 304 stainless steel stationary stand, fully assembled with leveling feet and instructions.

Catalog #	Description	Shipping Wt.
4536400	Stand for FlaskScrubber Vantage Series, 36.75" w x 25.6" d x 17.0" h (93.3 x 65.0 x 43.2 cm), includes two storage compartments with hinged doors	40 lbs. (18.1 kg)
4580000	Stand for Freestanding or Mobile FlaskScrubbers or SteamScrubbers, 24.0" w x 25.6" d x 17.0" h (62.0 x 65.0 x 43.2 cm), includes one storage compartment with hinged door	30 lbs. (13.6 kg)



FlaskScrubber Upper Spindle Rack 4525000

Fits in any FlaskScrubber or FlaskScrubber Vantage Series Washer manufactured after 8/13/01. Constructed of Type 304

stainless steel with nylon center spray nozzle. Includes 24 each removable spindles, 24 each adjustable height clips, 24 each nylon plugs, distribution tube adapter and two side rails. Spindles may be removed and plugged to accommodate various accessory inserts (sold separately). Spindle dimensions: 4" high x 1/4"OD. Frame dimensions: 18.8" w x 21.0" d x 5" high (47.8 x 53.3 x 12.7 cm). Shipping weight 18 lbs. (8.2 kg).



FlaskScrubber Adjustable Height Upper Rack 4494401

Expands capacity of FlaskScrubber or FlaskScrubber Vantage Series Washer to handle

additional labware, especially beakers. Type 304 stainless steel rack with acetal rollers includes two 24-pin basket inserts that may be positioned on the rack high or low to accommodate various glassware heights. Pins have protective plastic tips. In the upper position, insert(s) hold beakers up to 250 ml while flasks up to 1 liter may be washed on the spindle rack below. In the lower position, insert(s) hold beakers up to 600 ml while flasks up to 500 ml may be washed on the spindle rack below. Includes two hub adapters (one short, one tall) for connection to the spindle rack. The hub adapter sprays the Upper Rack area with water and detergent. Also includes rails and end caps for installation on the washer. Dimensions: 18.8" w x 21.0" d x 5.0" h (47.6 x 53.3 x 12.7 cm). Shipping weight 8 lbs. (3.6 kg).



SteamScrubber Adjustable Height Upper Rack 4494501

May be used in place of the Standard Upper Rack in any SteamScrubber. Type 304 stainless steel rack with acetal rollers

includes two 24-pin Type 304 stainless steel insert baskets that may be positioned on the rack high or low to accommodate various glassware heights. Stainless steel pins have plastic caps to protect glassware from scratching. Dimensions: 18.8" w x 21.0" d x 5.0" h (47.6 x 53.3 x 12.7 cm). Shipping weight 6.5 lbs. (2.9 kg).



SteamScrubber Standard Upper Rack 4401102

One is included with every SteamScrubber. Large volume users may wish to order additional Upper Racks for efficient glassware handling. Type 304 stainless

steel with acetal rollers. Select accessory Basket Inserts below and on page 27 to suit your glassware mix. Dimensions: 18.9" w x 21.0" d x 3.5" h (48 x 53 x 9 cm). Shipping weight 7 lbs. (3.2 kg).



SteamScrubber Standard Bottom Rack 4401202

One is included with every SteamScrubber. Large volume users may wish to order additional Bottom Racks for efficient glassware handling. Type 304 stainless steel with

polypropylene rollers. Select accessory Basket Inserts below and on page 27 to suit your glassware mix. Dimensions: 20.6" w x 21.0" d x 3.3" h (52 x 53 x 9 cm). Shipping weight 7.5 lbs. (3.4 kg).

Basket Inserts

Use the icon key below to select accessory inserts that fit your washer. Each indicated rack can accommodate a maximum of two inserts except Utensil Holders and Utensil Baskets. Each indicated rack can hold a maximum of five Utensil Holders* or four Utensil Baskets.



▲ Fits in SteamScrubber Upper Rack



▼ Fits in SteamScrubber Bottom Rack



▼ Fits in FlaskScrubber and FlaskScrubber Vantage Series Standard Spindle Rack with spindles removed and plugged



▲ Fits in FlaskScrubber and FlaskScrubber Vantage Series Accessory Upper Spindle Rack 4525000 with spindles removed and plugged

NEW

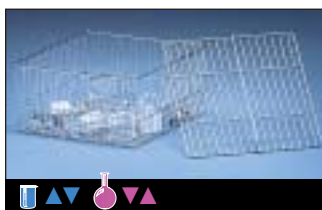


Utensil Holder 4542500

For spatulas, spoons, scoops and other miscellaneous utensils.

Utensils fit vertically in four compartments, 2.75" w x 3.5" d x 4.88" h (7 x 8.9 x 12.4 cm). Type 304 stainless steel. Dimensions: 10.75" w x 4.13" d x 6.63" h

(27.3 x 10.5 x 16.8 cm). Shipping weight 3.5 lbs. (1.6 kg).



Utensil Basket 4402201

For miscellaneous labware such as stoppers, spatulas and other small lightweight items that will not pass through No. 4 mesh sides and bottom. Retainer top is required and included. Type 304 stainless steel. Dimensions: 8.0" w

x 8.0" d x 4.0" h (20.3 x 20.3 x 10.2 cm). Shipping weight 1.5 lbs. (0.7 kg).

* Four Utensil Holders maximum in FlaskScrubber and FlaskScrubber Vantage Series Washers.

All Washer Models

Accessories

NEW



Bulk Tube Insert 4542100

Quick loading. For vertically-positioned test tubes. Holds up to 600 each 13 mm tubes or 244 each 20 mm tubes. Bottom, grate size .38" (9.5 mm), allows water to drain from inverted tubes. When insert is less than fully loaded, the

divider may be adjusted to keep tubes upright. Type 304 stainless steel. Smallest divided compartment size: 1.75" w x 8.13" d x 4.18" h (4.4 x 20.7 x 10.6 cm). Overall interior dimensions (without divider): 18.69" w x 8.13" d x 4.18" h (47.5 x 20.7 x 10.6 cm). Dimensions: 21" w x 8.25" d x 4.38" h (53.3 x 20.7 x 11.1 cm) Shipping weight 5 lbs. (2.3 cm).



Culture Tube Inserts

Choose from three inserts designed to hold tubes from 10 to 24 mm OD. Type 304 stainless steel.

Catalog #	Description	Dimensions	Grid Size	Shipping Wt.
4401301*	242 tubes, 10 mm to 12 mm	18.0" w x 8.8" d x 4.5" h (45.7 x 22.2 x 11.4 cm)	15 mm x 15 mm	4 lbs. (2 kg)
4402001	144 tubes, 15 mm to 18 mm	19.3" w x 8.8" d x 8.0" h (48.9 x 22.2 x 20.3 cm)	19.5 mm x 19.5 mm	2.5 lbs. (1.2 kg)
4402101	105 tubes, 20 mm to 24 mm	19.3" w x 8.8" d x 8.0" h (48.9 x 22.2 x 20.3 cm)	24 mm x 24 mm	2.5 lbs. (1.2 kg)
4401401	Retainer Top	18.5" w x 8.4" d x 0.3" h (47 x 21.3 x 0.6 cm)	24 mm x 24 mm	1.5 lbs. (0.7 kg)

*Includes 4401401 Retainer Top



Labware Inserts

Pins hold a variety of wider-mouth flasks, beakers and other labware in inverted position. Retainer Top is recommended for use with plastic and lightweight glassware. Inserts and Retainer Top of type 304 stainless steel.

Stainless steel pins have plastic tips to protect glassware from scratching.

Catalog #	Description	Dimensions	Shipping Weight
4401501	10-Pin Insert	19.3" w x 8.8" d x 8.0" h (49.3 x 22.2 x 20.3 cm)	2.5 lbs. (1.1 kg)
4401801	32-Pin Insert	19.3" w x 8.8" d x 6.0" h (49.3 x 22.2 x 20.3 cm)	2.5 lbs. (1.1 kg)
4401901	Retainer Top	18.5" w x 8.0" d x 0.3" h (47 x 20.3 x 0.6 cm)	1.5 lbs. (0.7 kg)



BOD Bottle Insert 4404801

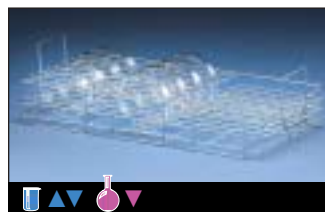
Type 304 stainless steel. Capacity: 18 bottles. Grid size: 70 mm x 70 mm. Dimensions: 19.5" w x 8.8" d x 6.0" h (49.5 x 22.2 x 15.2 cm). Shipping weight 2.0 lbs. (0.9 kg).



Multi-Pin Insert 4404901

Forty-two pins accommodate a variety of labware. Type 304 stainless steel. Stainless steel pins have plastic tips to protect glassware from scratching.

Dimensions: 8.3" w x 19.3" d x 5.0" h (21 x 48.9 x 12.7 cm). Shipping weight 2.2 lbs. (1 kg).



Petri Dish Insert 4404201

For petri dishes, watch glasses and microtiter plates. Capacity: 24 plates. Grid size: 22 mm x 140 mm. Type 304 stainless steel. Dimensions: 19.3" w x 8.5" d x 5.3" h (48.9 x 21.6 x 13.3 cm). Shipping weight 2 lbs. (1 kg).



DNA Sequencing Plate Insert 4519000

For electrophoresis plates, 10" x 16.6". Capacity: 6 plates. Type 304 stainless steel with plastic glides. Dimensions: 17" wide x 8 7/8" deep x 9 9/10" high (43.3 x 22.5 x 25.1 cm). Shipping weight 6 lbs. (2.7 kg).



Pipet Inserts

Permit direct injection cleaning of pipets. Self-sealing silicone check valves allow washing of partial or full loads. Type 304 stainless steel. FlaskScrubber and FlaskScrubber Vantage Series Washers hold up to four 4494200 or two 4494301 Inserts.

Catalog #	Description	Shipping Weight
4494200	Holds 8 pipets, 1 ml to 10 ml. Includes 1 each 1.25" mounting spindle.	1.5 lbs. (0.7 kg)
4494301	Holds 14 pipets, 1 ml to 50 ml. Includes 2 each 1.25" mounting spindles and PVC-coated holder.	2.0 lbs. (0.9 kg)



Glassware Holders

Two of each size are included with every FlaskScrubber and FlaskScrubber Vantage Series Washer. Gray vinyl-coated Type 304 stainless steel holders grip wide-mouth glassware over spindles.

Catalog #	Description	Shipping Weight
4424600	4" h (10 cm)	0.4 lbs. (0.2 kg)
4424800	6" h (15 cm)	0.4 lbs. (0.2 kg)

All Washer Models

Companion Products



LabSolutions Liquid Detergent 4522000, Neutralizing Acid Rinse 4522000, and Powder Detergent 4422100 and 4422000

LabSolutions™ Non-Foaming Powder Detergent

- Specially formulated for Labconco glassware washers. Dispenses automatically in FlaskScrubber Vantage Series Washers.
- Removes most lab contaminants such as grease, agar, blood and protein digestates.
- Rinses completely.
- Non-foaming formula does not promote leaks.
- Includes scoop for accurate measurement.
- Economical. Most cycle programs require just one scoop.
- A 1% solution has a pH of approximately 12.5.
- Non-hazardous formula may be shipped anywhere.

Catalog#	Description	Shipping Weight
4422000	Powder Detergent , small pail for approximately 140 loads	10 lbs. (4.5 kg)
4422100	Powder Detergent , large pail for approximately 400 loads	27.5 lbs. (12.5 kg)

LabSolutions™ Low-Foaming Liquid Detergent

- Specially formulated for Labconco glassware washers. Dispenses automatically in FlaskScrubber Vantage Series Washers.
- Removes a wide range of laboratory contaminants.
- Rinses completely.
- Non-corrosive formula won't degrade stainless steel, glass or plastic.
- Phosphate-free for environmentally-safe disposal.
- Chlorine-free and tissue culture-safe.
- Temperature stable. Use in hot or cold water.

Catalog#	Description	Shipping Weight
4522000	Liquid Detergent , for approximately 180 loads	1 gal. (3.8 liters)

LabSolutions™ Neutralizing Acid Rinse

- Specially formulated for Labconco glassware washers. Dispenses automatically in FlaskScrubber Vantage Series Washers.
- Mild acid corrects pH, reducing alkaline detergent residue.
- Removes hard water deposits, mineral deposits, accumulated salts or lime scale that can cloud glassware.
- Rinses completely.

Catalog#	Description	Shipping Weight
4522200	Neutralizing Acid Rinse , fills reservoir approximately 6 times	34 oz. (1 liter)

For MSDS information, visit our website at www.labconco.com or call customer service at 800-821-5525 or 816-333-8811.



Glassware Cart 8032500



Glassware Cart 8045000

Glassware Carts

- Safely transport clean and dirty labware.
- Come with two large or four small interchangeable vinyl-coated wire baskets.
- 4" diameter casters (two with toe locks).
- Include removable drip pan below the baskets to catch spills.
- Constructed of welded 1-inch square tubular steel coated with mar-resistant epoxy.
- Dimensions: 34.9" w x 19.0" d x 36.4" h (88.6 x 48.3 x 92.4 cm)
- Fully assembled.
- Lifetime warranty.

Catalog#	Description	Shipping Weight
8032500	2-Basket Glassware Cart	43 lbs. (19.5 kg)
8045000	4-Basket Glassware Cart	43 lbs. (19.5 kg)
8040100	Large Basket, 32.0" w x 18.0" d x 4.0" h (81.3 x 45.7 x 10.2 cm)	5 lbs. (2.3 kg)
8040200	Small Basket, 16.0" w x 18.0" d x 4.0" h (40.6 x 45.7 x 10.2 cm)	2 lbs. (0.9 kg)

All Washer Models

Companion Products



WaterPro RO Station 9075000

WaterPro® RO Stations

- Connect to the SteamScrubber or FlaskScrubber to provide purified water for the rinse cycles.
- Use carbon filtration and reverse osmosis technologies to purify water.
- Deliver 1 liter/minute of reverse osmosis purified, Type III water when feedwater purity is 100 µs or better.
- Available for wall mounting or with an accessory stand for bench mounting.

WaterPro RO Station 9075000

Epoxy-coated steel cabinet with Type 304 stainless steel front panel. Three bowls made of white polypropylene. Includes integral 17 liter polyethylene storage tank with outlet port for connection to washer; ON/OFF switch; µS, TEMP ° C, TIME DISP. and TANK FULL indicator lights; and DISPENSE switch. If TIME DISP. is activated, water dispensing from the valve automatically shuts off once user-set time has elapsed. LED display shows actual water quality from 1 to 999 microsiemens (µS), actual water temperature in ° C or dispense time in minutes. For 115 volt, 60 Hz, 12 amp AC operation. Includes an 8-foot, 3-wire cord and plug. **Requires Prefilter/Carbon Filter Kit 9067201 and Reverse Osmosis Membrane 9078700 for operation.** Dimensions: 31 1/8" w x 7 7/8" d x 30 3/8" h (79 x 20 x 77 cm). Shipping weight 100 lbs. (45 kg).

*WaterPro RO Station 9075002

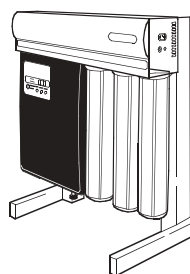
Same as 9075000 except for 230 volt, 50 Hz, 60 amp AC operation. Includes an 8-foot, 3-wire cord. **An electrical plug is required.**

Prefilter/Carbon Filter Kit 9067201

Required for operation. Includes Prefilters (3) and Carbon Filters (3), for initial start-up and two filter changes. Shipping weight 10 lbs. (4.5 kg).

Reverse Osmosis Membrane 9078700

Required for operation. Shipping weight 6 lbs. (2.7 kg).



Support Stand 9077400

For converting wall-mounted WaterPro RO Station to bench mounted. Rests on countertop or other horizontal surface. Epoxy-coated steel. Dimensions (with WaterPro RO Station attached): 31 1/8" w x 16 1/8" d x 35 1/3" h (79 x 41 x 90 cm). Shipping weight 20 lbs. (9 kg).



WaterPro Softener 9073300

WaterPro Softeners

- Soften tap water to protect washer components from scaling and to help activate detergent.
- Twelve-day timer automatically regenerates resins.
- Large capacity 20" brine sump holds enough salt to provide three regenerations before refilling is necessary.
- Produce over 600 gallons (2271 liters) of softened water at 8 grains of hardness before salt replacement is necessary.
- Large ion exchange resin capacity provides years of water softening.

WaterPro Softener 9073300

Epoxy-coated steel cabinet with Type 304 stainless steel front panel. Two white polypropylene sumps. Includes 6 color-coded hardness test strips. For 115 volt, 60 Hz, 1 amp operation. Includes 8-foot, 3-wire cord and plug. Shipping weight 65 lbs. (29.5 kg).

*WaterPro Softener 9073301

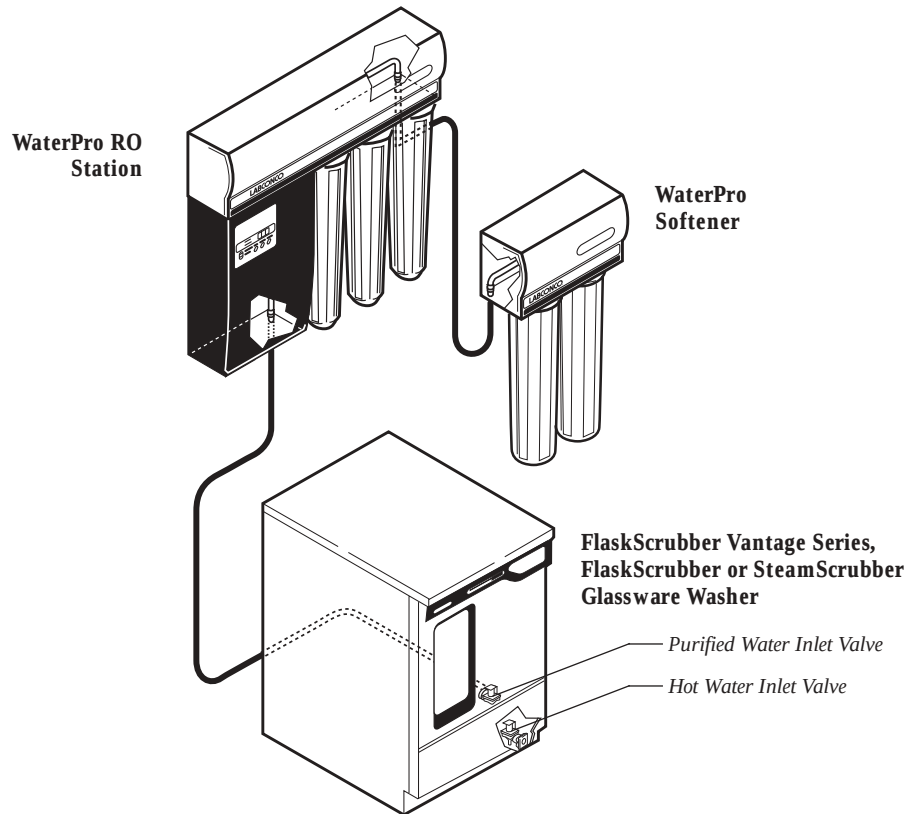
Same as 90733-00 except for 230 volt, 50 Hz, 0.5 amp operation. Includes 8-foot, 3-wire cord. **Plug is required.**

*International electrical configuration

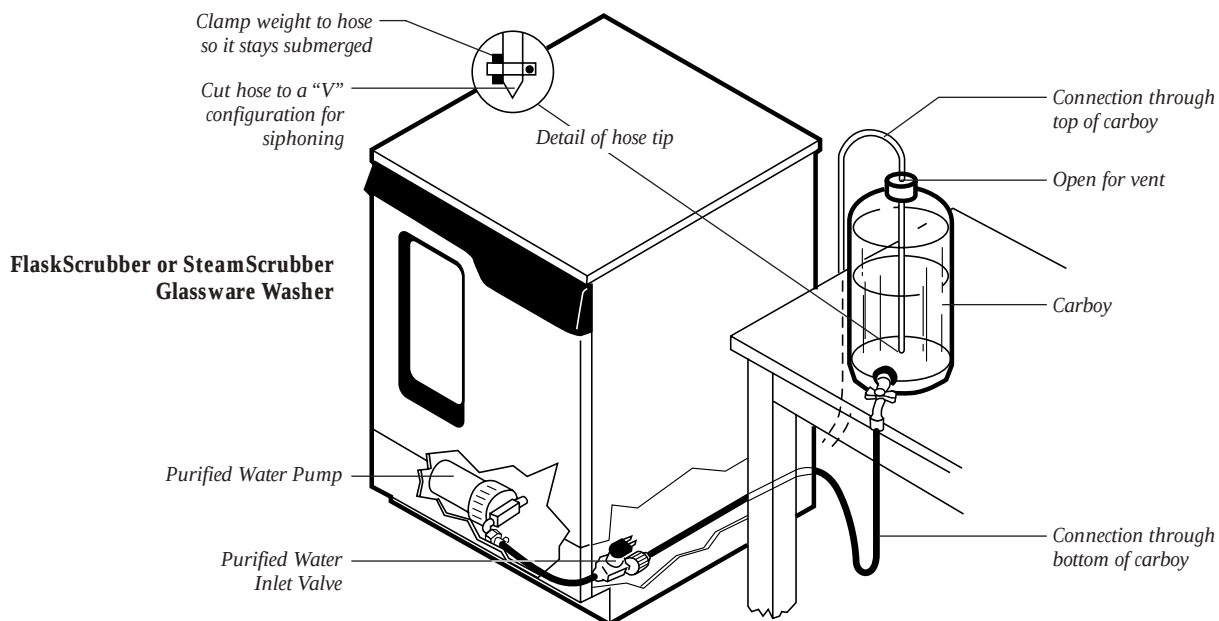
All Washer Models

Typical Plumbing Connections

This diagram illustrates the possible connections of various WaterPro Water Purification System components.



This diagram illustrates possible connections of the washer's purified water inlet valve to purified water stored in a carboy. As shown, the connection may be made through the top or bottom of the carboy.





**Contact Labconco for more information about
these quality products for your laboratory.**



Fume Hoods and
Carbon-Filtered
Enclosures



HEPA-Filtered Safety
Cabinets, Clean Benches
and Enclosures



Glove Boxes



Laboratory Animal
Research Stations



Water Purification
Systems



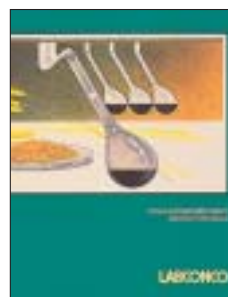
Freeze Dry
Systems



Centrifugal Concentrators
and Cold Traps



Multiple Sample
Evaporation Systems



Agricultural
Chemistry Products



Laboratory
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HOME PAGE: www.labconco.com



Blood Drawing
Chairs



Digital
Chloridometer



Vacuum
Desiccator





User's Manual

Fiberglass 30 Laboratory Fume Hoods

Models

3030000

3030001

3030002

3030003

3030004

3030005

Register your product online at
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Labby the LABster



*Protecting your
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HOME PAGE www.labconco.com

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Fiberglass 30 Laboratory Fume Hood Manual #28316

Warranty

Labconco provides a warranty on all parts and factory workmanship. The warranty includes areas of defective material and workmanship, provided such defect results from normal and proper use of the equipment.

The warranty for all Labconco products will expire one year from date of installation or two years from date of shipment from Labconco, whichever is sooner, except the following:

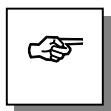
- Purifier® Delta® Series Biological Safety Cabinets, carry a three-year warranty from date of installation or four years from date of shipment from Labconco, whichever is sooner.
- Carts carry a lifetime warranty.
- Glass is not warranted from breakage due to accident or mishandling.

This limited warranty covers parts and labor, but not transportation and insurance charges. In the event of a warranty claim, contact Labconco Corporation or the dealer who sold you the product. If the cause is determined to be a manufacturing fault, the dealer or Labconco Corporation will repair or replace all defective parts to restore the unit to operation. Under no circumstances shall Labconco Corporation be liable for indirect, consequential, or special damages of any kind. This statement may be altered by a specific published amendment. No individual has authorization to alter the provisions of this warranty policy or its amendments. Lamps and filters are not covered by this warranty. Damage due to corrosion or accidental breakage is also not covered.

Limitation of Liability

The disposal and/or emission of substances used in connection with this equipment may be governed by various federal, state, or local regulations. All users of this equipment are required to become familiar with any regulations that apply in the user's area concerning the dumping of waste materials in or upon water, land, or air and to comply with such regulations. Labconco Corporation is held harmless with respect to user's compliance with such regulations.

Contacting Labconco Corporation



If you have questions that are not addressed in this manual, or if you need technical assistance, contact Labconco's Customer Service Department or Labconco's Product Service Department at 1-800-821-5525 or 1-816-333-8811, between the hours of 7:00 a.m. and 6:00 p.m., Central Standard Time.

Visit Labconco's web site at: <http://www.labconco.com> or email Labconco at: labconco@labconco.com.

Part #2831600 Rev A, ECO C277

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CHAPTER 1

INTRODUCTION

Congratulations on your purchase of a Labconco Fiberglass 30 Laboratory Fume Hood. Your Fiberglass 30 Laboratory Fume Hood is designed to protect you. It is the result of Labconco's more than 50 years experience in manufacturing fume hoods, and users like you suggested many of its features to us.

The Labconco Fiberglass 30 Fume Hood has been engineered to effectively contain toxic, noxious, or other harmful materials when properly installed. The Fiberglass 30 offers many unique features to enhance safety, performance, and visibility. To take full advantage of them, please acquaint yourself with this manual and keep it handy for future reference. If you are unfamiliar with how fume hoods operate, please review *Chapter 4: Performance Features and Safety Precautions* before you begin working in the fume hood. Even if you are an experienced fume hood user, please review *Chapter 5: Using Your Fume Hood*, which describes your Fiberglass 30 features so that you can use the hood efficiently.

About This Manual

This manual is designed to help you install, use, and maintain your laboratory fume hood. Instructions for installing optional equipment on your hood are also included.

Chapter 1: Introduction provides a brief overview of the laboratory fume hood, explains the organization of the manual, and defines the typographical conventions used in the manual.

Chapter 2: Prerequisites explains what you need to do to prepare your site before you install your laboratory fume hood. Electrical and service requirements are discussed.

Chapter 3: Getting Started contains the information you need to properly unpack, inspect, install, and certify your laboratory fume hood.

Chapter 4: Performance Features and Safety Precautions explains how the laboratory fume hood operates and the appropriate precautions you should take when using the fume hood.

Chapter 5: Using Your Fiberglass 30 discusses the basic operation of your fume hood. Information on how to prepare, use and shut down your fume hood is included.

Chapter 6: Maintaining Your Fiberglass 30 explains how to perform routine maintenance on your fume hood.

Chapter 7: Modifying Your Fiberglass 30 explains how to modify the fume hood or add accessories.

Chapter 8: Troubleshooting contains a table of problems you may encounter while using your laboratory fume hood including the probable causes and suggested corrective actions.

Appendix A: Fiberglass 30 Hood Components contains labeled diagrams of all of the components of the fume hoods.

Appendix B: Fiberglass 30 Hood Dimensions contains comprehensive diagrams showing all of the dimensions for the laboratory fume hoods.

Appendix C: Fiberglass 30 Hood Specifications contains the electrical requirements for laboratory fume hood. Wiring diagrams are also included.

Appendix D: References lists the various resources available that deal with laboratory fume hoods.

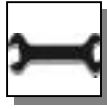
Typographical Conventions

Recognizing the following typographical conventions will help you understand and use this manual:

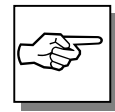
- Book, chapter, and section titles are shown in italic type (e.g., *Chapter 3: Getting Started*).
- Steps required to perform a task are presented in a numbered format.
- Comments located in the margins provide suggestions, reminders, and references.



- Critical information is presented in boldface type in paragraphs that are preceded by the exclamation icon. Failure to comply with the information following an exclamation icon may result in injury to the user or permanent damage to fume hood.



- Critical information is presented in boldface type in paragraphs that are preceded by the wrench icon. These operations should only be performed by a trained certifier or contractor. Failure to comply with the information following a wrench icon may result in injury to the user or permanent damage to your hood.



- Important information is presented in capitalized type in paragraphs that are preceded by the pointer icon. It is imperative that the information contained in these paragraphs be thoroughly read and understood by the user.

Your Next Step

If your Fume Hood needs to be installed, proceed to *Chapter 2: Prerequisites* to ensure your installation site meets all of the requirements. Then, go to *Chapter 3: Getting Started* for instructions on how to install your laboratory fume hood and make all of the necessary connections.

If you would like to review how laboratory fume hoods operate, go to *Chapter 4: Performance Features and Safety Precautions*.

For information on the operational characteristics of your laboratory fume hood, go to *Chapter 5: Using Your Fiberglass 30 Hood*.

If your laboratory fume hood is installed and you need to perform routine maintenance on the cabinet, proceed to *Chapter 6: Maintaining Your Fiberglass 30 Hood*.

For information on making modifications to the configuration of your fume hood, go to *Chapter 7: Modifying Your Fiberglass 30 Fume Hood*.

Refer to *Chapter 8: Troubleshooting* if you are experiencing problems with your fume hood.

CHAPTER 2

PREREQUISITES

Before you install your laboratory fume hood, you need to prepare your site for installation. Carefully examine the location where you intend to install your hood. You must be certain that the area is level and of solid construction. In addition, a dedicated source of electrical power must be located near the installation site.

Carefully read this chapter to learn the requirements for your installation site:

- The location requirements.
- The support requirements.
- The exhaust requirements.
- The electrical power requirements.
- The service line requirements.
- The space requirements.

Refer to *Appendix B: Fiberglass 30 Hood Dimensions* for complete fume hood dimensions.

Refer to *Appendix C: Fiberglass 30 Hood Specifications* for complete laboratory fume hood electrical and environmental conditions, specifications and requirements.

Location Requirements



The fume hood should be located away from traffic patterns, doors, windows, fans, ventilation registers, and any other air-handling device that could disrupt its airflow patterns. All windows in the room should be closed.

Support Requirements



DO NOT install the fume hood on a cart, dolly, or mobile bench. **ALL** Fiberglass 30 Hood installations must be permanent and stationary. The supporting structure usually consists of a base cabinet and chemically resistant work surface. See Chapter 7 **Modifying Your Fiberglass 30 Hood.**

Exhaust Requirements

The exhaust duct connection has been designed for 6" nominal duct (6.625" OD) to allow for minimum static pressure loss while operating at 100 fpm face velocities. The 6" diameter exhaust duct also allows for proper transport velocities away from the hood in the 1000 fpm to 2500 fpm range. The proper exhaust volume and static pressure loss are listed next for each hood model:

Fiberglass 30 Hood with Integral Blower, 100 fpm, 310 cfm, capable of overcoming 0.12" external static pressure.

Fiberglass 30 Hood for use with Remote Blower, 100 fpm, 310 cfm, 0.14" static pressure loss.

Fiberglass 30 Hood with Explosion Proof Blower, 100 fpm, 310 cfm, capable of overcoming 0.12" external static pressure.

Proper blower selection can be determined from these exhaust requirements and the total system static pressure loss. Contact Labconco Customer Service for assistance in sizing a blower.

Electrical Requirements

Other than explosion proof models, the Fiberglass 30 Hood models feature internal wiring for the incandescent light assembly, light switch and blower switch. If your unit has an integral blower, then internal wiring to the blower motor and blower switch is included. Explosion Proof blowers require on site wiring. All internal wiring is terminated at the single point wiring junction box for hook-up by a qualified electrician. Refer to *Chapter 3: Getting Started* and *Appendix C: Fiberglass 30 Specifications* for the wiring diagram for proper electrical installation.

Service Line Requirements

All service lines to the laboratory fume hood should be ¼ inch outside diameter, copper (brass for natural gas), and equipped with an easily accessible shut-off valve, should disconnection be required. If the service line pressure exceeds 40 PSI, it must be equipped with a pressure regulator to reduce the line pressure. Please check with local codes for other requirements.

Space Requirements

The dimensions for the different models are shown in *Appendix B: Fiberglass 30 Hood Dimensions*.

Your Next Step

After you have determined that the location you have selected accommodates the installation and operational requirements of your fume hood, you are ready to begin installation. Proceed to *Chapter 3: Getting Started*.

CHAPTER 3

GETTING STARTED

Now that the site for your laboratory fume hood is properly prepared, you are ready to unpack, inspect, install, and certify your unit. Read this chapter to learn how to:

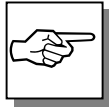
- Unpack and move your Fiberglass 30 Hood.
- Set up the fume hood with the supporting structure and work surface.
- Connect to an exhaust system.
- Connect the electrical supply source.
- Connect the service lines.
- Seal the Fiberglass 30 Hood to the work surface.
- Arrange certification of your Fiberglass 30 Hood.

Depending upon which model you are installing, you may need common plumbing and electrical installation tools in addition to 5/16", 3/8", 7/16", and 1/2" wrenches, ratchets, sockets, a nut driver set, a flat-blade screwdriver, a Phillips screwdriver, and a carpenter level to complete the instructions in the chapter.

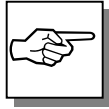
Unpacking Your Laboratory Fume Hood

Carefully remove the shrink-wrap or carton on your fume hood and inspect it for damage that may have occurred in transit. If your unit is damaged, notify the delivery carrier immediately and retain the entire shipment intact for inspection by the carrier.

The United States Interstate Commerce Commission rules require that claims be filed with the delivery carrier within fifteen (15) days of delivery.



DO NOT RETURN GOODS WITHOUT THE PRIOR AUTHORIZATION OF LABCONCO. UNAUTHORIZED RETURNS WILL NOT BE ACCEPTED.



IF YOUR HOOD WAS DAMAGED IN TRANSIT, YOU MUST FILE A CLAIM DIRECTLY WITH THE FREIGHT CARRIER. LABCONCO CORPORATION AND ITS DEALERS ARE NOT RESPONSIBLE FOR SHIPPING DAMAGES.

Do not discard the shipping skid or packing material for your fume hood until you have checked all of the components and installed and tested the unit.

Do not remove the fume hood from its shipping skid until it is ready to be placed into its final location. Move the unit by placing a flat, low dolly under the shipping skid, or by using a floor jack.



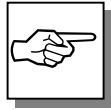
THE FIBERGLASS 30 HOOD MODELS WEIGH BETWEEN 96 TO 129 LBS. (44-59 KG). THE SHIPPING SKID ALLOWS FOR LIFTING WITH A MECHANICAL LIFT TRUCK OR FLOOR JACK. IF YOU MUST LIFT THE FUME HOOD MANUALLY, FOLLOW SAFE-LIFTING GUIDELINES.

NORMALLY, THE FUME HOOD CAN BE SLID OFF A HYDRAULIC LIFT TABLE AND BE PLACED INTO POSITION ON TOP OF THE WORK SURFACE. DO NOT LIFT BY THE FRONT AIR FOIL.



Do not move the hood by tilting it onto a hand truck.

Removing the Shipping Skid

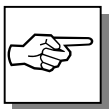


LEAVE THE FUME HOOD ATTACHED TO ITS SHIPPING SKID UNTIL IT IS AS CLOSE TO ITS FINAL LOCATION AS POSSIBLE. MOVE THE HOOD BY USING A SUITABLE FLOOR JACK, OR BY PLACING A FURNITURE DOLLY UNDERDNEATH THE SKID. DO NOT MOVE THE HOOD BY TILTING IT ONTO A HAND TRUCK.

After you verify the fume hood components, move your hood to the location where you want to install it.

Sash Weight Release

To protect the fume hood from damage in shipment, the sash weight has been secured to the back of the fume hood with four (4) screws. Simply remove the screws and make sure the sash cables are on the pulleys before operation of the sash.



NOTE: THE SASH WEIGHT IS MATCHED TO THIS SPECIFIC HOOD AND SHOULD NOT BE EXCHANGED ON ANY OTHER UNIT.

Install the Fiberglass 30 Hood on a Supporting Structure and Work Surface



The Fiberglass 30 Hood is heavy! Use caution when lifting or moving the unit.

When installing the Fiberglass 30 Fume Hood onto a chemically resistant work surface or benchtop, ensure

that the structure can safely support the combined weight of the fume hood and any related equipment. The work surface should be at least as wide as the hood to properly support it. **The work surface is aligned with the back of the fume hood. This will provide the correct spacing under the air foil for proper bypass airflow.**



WARNING: It is important to support the rear of the work surface and fume hood. The cross support provides support for the bottom of the work surface. Install the cross support after the base cabinets and work surface are leveled and before installing the hood.

The following are instructions for mounting a cross support:

1. Level the base cabinets and the work surface. Work surface should be placed flush with the back of the fume hood as shown in Figure 3-1.
2. Scribe a line on the wall or back of the base cabinet to locate the support under the work surface.
3. Mount the support by attaching it to the wall or base cabinet.
4. Place the hood on top of the work surface and cross support.

The work surface should be smooth and durable, such as a chemically-resistant epoxy resin. The surface should be nonporous and resistant to the acids, solvents, and chemicals used.

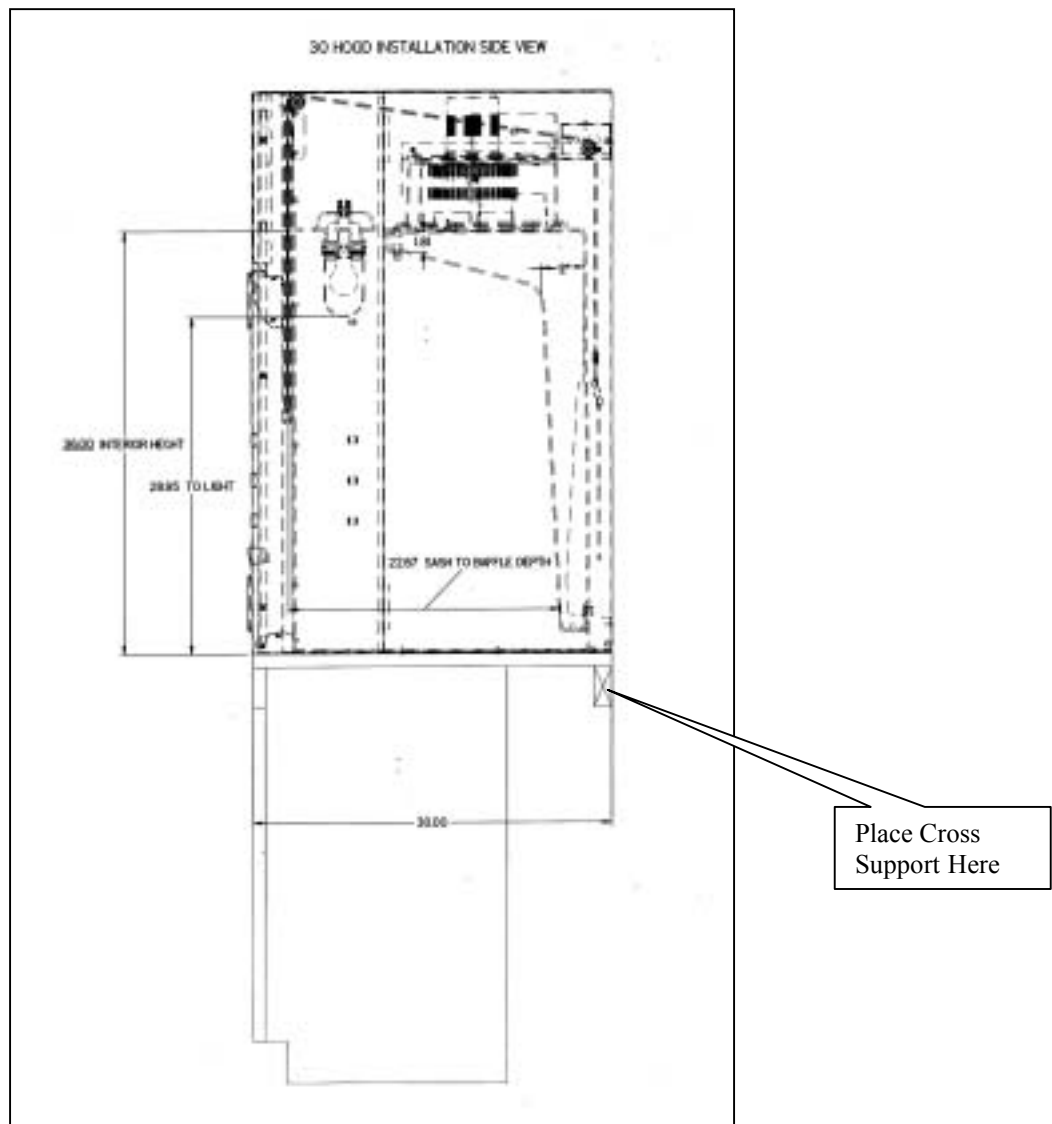
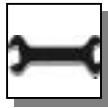


Figure 3-1

Connecting to the Fiberglass 30 Hood Exhaust System



WARNING: The weight of the exhaust ductwork system must be supported independently of the hood superstructure. Do not allow this weight to be supported by the hood structure as damage to the hood may occur.



The exhaust connection should be installed by a qualified HVAC contractor.

The exhaust connection on your hood has been designed for 6" nominal pipe (6.625" OD) to allow for minimum static pressure loss with proper transport velocities away from the hood. Consult Labconco Customer Service should you require help sizing your blower for the exhaust volume and total system static pressure loss. See Chapter 2 for the hood airflow specifications.



The selected exhaust duct material should match the hood procedures and chemicals used to ensure compatibility.

Connecting the Electrical Supply Source to the Fiberglass 30 Fume Hood

Prior to connecting any electrical wiring to the fume hood structure, refer to the hood identification plate for the proper electrical requirements of your specific model.



WARNING: The building electrical supply system for Fiberglass 30 Hoods should include overload protection. A switch or circuit breaker should be in close proximity to the equipment and within easy reach of the operator. The switch or circuit breaker is to be marked as the disconnecting device for the equipment. Consult the NEC-2002 for proper installation.

The identification plate, model number, serial number, and electrical connection boxes are accessible from the front of the fume hood by removing the front panel.

The Fiberglass 30 Hood is normally wired for 115 Volt, 60 Hz, 20 Amp or 230 Volt, 50 Hz, 10 Amp electrical services. The number of circuits varies depending on

the model. All of the electrical connections are terminated at the single point internal junction box for hook-up by a qualified electrician. Refer to the wiring diagram for your Fiberglass 30 Hood in *Appendix C: Fiberglass 30 Fume Hood Specifications*.

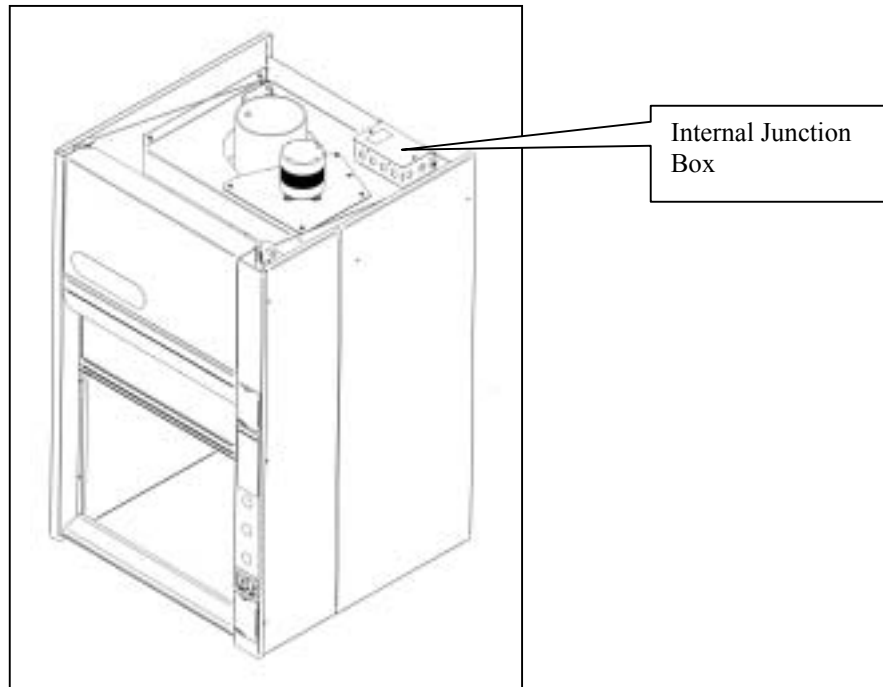


Figure 3-2



All wiring for the fume hood SHOULD be performed by a licensed electrician and conform to all local codes. In most cases, the hood will require the use of shielded conduit to protect the wiring into the hood. The grounding connection shall not be made to the terminal box cover.

The incandescent light has been mounted inside the top liner panel and is sealed from vapors inside the hood structure. To change the incandescent light bulbs in your hood, you must first remove the protective glass. Replace the defective bulbs, and reassemble.

Connecting the Service Lines to the Fiberglass 30 Fume Hood

The hoods with service fixture kits are plumbed from the valve to the hose connector. Supply tubing shall be provided by the qualified installer. Tubing can enter the hood from above, through the back, or through the work surface to make these connections to the service fixtures.



NOTE: Inspect all fittings for leakage. Tighten the fittings slightly if needed.



CAUTION: Do not use oxygen with any standard service fixture. Contact Labconco Customer Service for oxygen fixture information.

Should access to the hood plumbing fixture bodies be required, remove the service access plate on the side of the hood by loosening screws. The valve body will be fully exposed for any service work that may be necessary. The service fixture kits on your laboratory hood are designed for use with the following services:

- Air
- Cold Water
- Hot Water
- Natural Gas – See caution below
- Vacuum



WARNING: Contact Labconco Customer Service directly before using any service other than those listed above in these valves to assure full compatibility.



CAUTION: Natural gas should be used only in the service fixture that has been pre-plumbed with brass tubing. Sulfur content of the gas could cause deterioration of standard copper supply lines.

Sealing the Fiberglass 30 Hood to the Work Surface

When the hood has been set in place, ducted, wired, and plumbed, it should be sealed at the work surface to prevent spilled materials from collecting under the walls of the hood. Materials such as silicone sealants are recommended to seal the hood structure.

Certifying the Fiberglass 30 Fume Hood

The combination of your laboratory hood, exhaust ductwork, and exhaust blower give you the flexibility to change the airflow at the sash opening of your hood. To determine the actual face velocity at the sash opening, airflow velocity readings will need to be taken. This should be done across the sash opening of the hood in accordance with the *Industrial Ventilation Manual* section on laboratory hoods. (See Appendix D – Reference) Labconco recommends an average face velocity at the sash opening of 80 to 100 feet per minute. Consult Chapter 2 for proper airflow volumes for your particular model.

The Fiberglass 30 Fume Hood has been tested per ASHRAE 110-1995. All hoods achieve an “as manufactured rating” of less than 0.10 part per million (ppm) at 4 liters per minute (lpm); AM<0.10 (consult Labconco for individual fume hood ratings). For “field use” ASHRAE testing by a certified technician, contact Labconco Customer Service.



NOTE: Face velocity profiles and smoke testing should be done periodically to ensure safe performance.

Your Next Step

After your fume hood has been installed and certified, you are ready to proceed to *Chapter 4: Performance Features and Safety Precautions*.

CHAPTER 4

PERFORMANCE

FEATURES AND

SAFETY

PRECAUTIONS

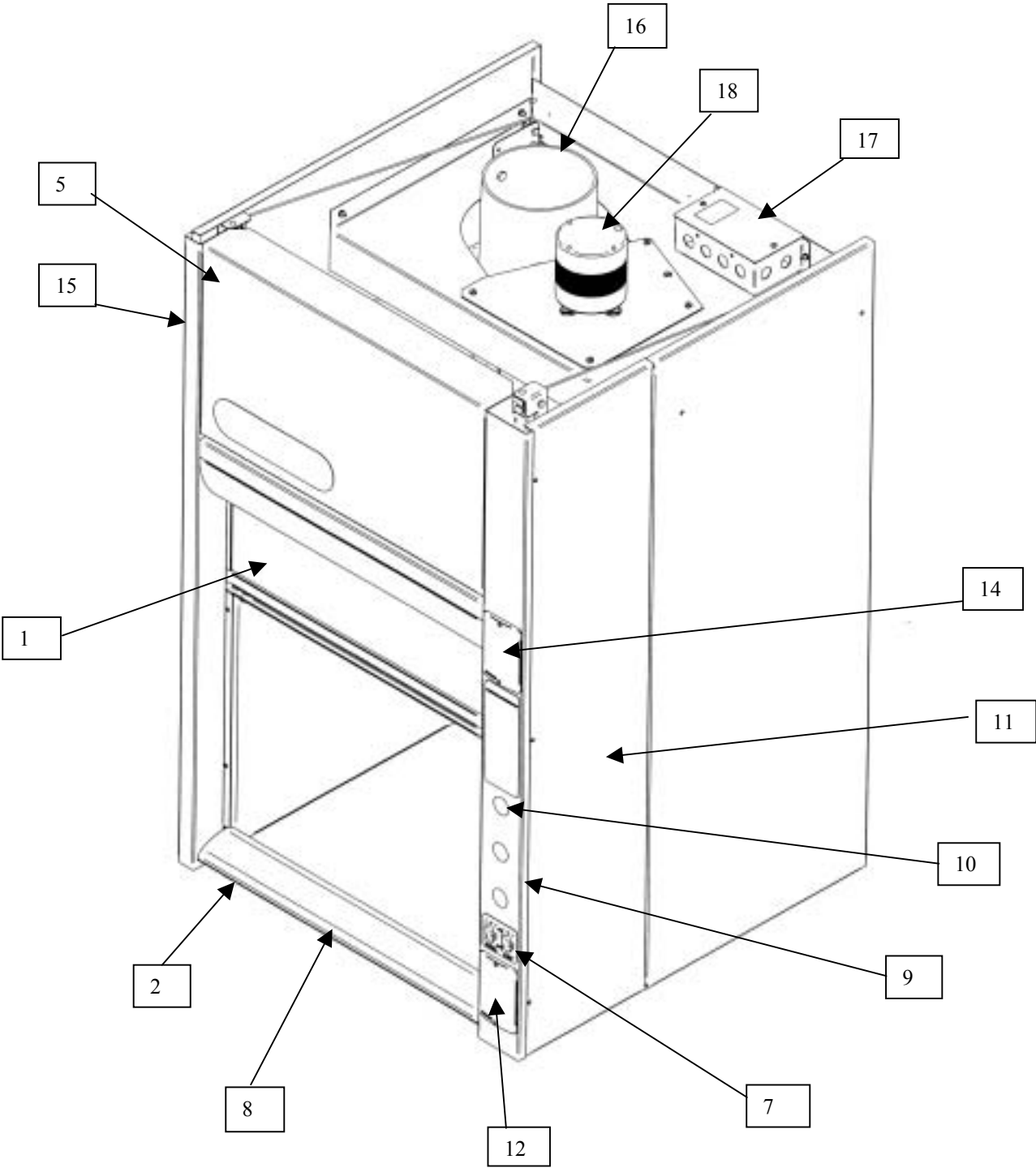
Performance Features:

The Fiberglass 30 Laboratory Hood is designed to meet the needs of the laboratory scientist. A fully featured by-pass hood with baffle and air foil can effectively contain toxic, noxious, or other harmful materials when properly installed. The by-pass airflow feature allows the hood face velocity to remain relatively stable as the sash is closed.

The air foil sweeps the worksurface to remove heavier than air contaminants.

1. **Unique sash provides maximum visibility of 28" high while conserving energy by limiting sash travel to 20"**. Vertical-rising sash may be raised from a closed to 20" operating height. Exhaust volume, and blower sizing is based on the 20" height.
2. **By-pass airflow design** ensures relatively stable face velocities.
3. **Large usable interior work depth and interior height of 36"** provides ample working space.
4. **Baffle** (not shown) directs airflow to the rear of the interior to provide efficient airflow. The baffle may be removed for cleaning purposes only.
5. **Lift-Away™ front panel** provides easy access to electrical wiring, and sash weights.
6. **Incandescent lighting** provides ample illumination inside the fume hood. No lighting is provided on explosion proof models.
7. **Low mounted, factory-wired light and blower switches** are ADA compliant. No switches are provided on explosion-proof models.
8. **Curved Air Foil** allows air to sweep the work surface for maximum containment.
9. **Corner posts** provide maximum visibility and the flexibility to add services after installation.
10. **All hoods are factory prepared for up to 3 service fixtures**. Field installed by removing side access panel.
11. **Removable side access panel** for servicing valves and electrical connections.
12. **All hoods are factory prepared for one electrical duplex**. A duplex can be field mounted on the right corner post. Receptacles are field-wired to the single point junction box.
13. **Shipped fully assembled** and eliminates the need for costly onsite assembly.

14. **Accessory Guardian™ Digital Airflow Monitor or Guardian Jr. Monitor** continuously monitors face velocity. An audio/visual alarm alerts the user to low airflow conditions. The right corner post is factory prepared to accommodate the Guardian Monitor (sold separately).
15. **Frame of epoxy-coated steel and aluminum** is durable and corrosion resistant.
16. **Exhaust connection.** The hood features 6" (6.625" OD pipe) exhaust connections sized to allow for a minimum static pressure loss through the hood structure while providing a good transport velocity through the exhaust system.
17. **Single point junction box** provides a single connection point for electrical wiring connections.
18. **Convenient integral blower motor** is readily accessible on integral blower models.



Safety Precautions



Although the laboratory hood has been engineered to maintain optimum operator safety, caution should always be used while working in the hood. Prior to using the hood, check to make sure that the exhaust blower is operating and that air is entering the hood at its specified face velocity.



USE GOOD HOUSEKEEPING IN THE HOOD AT ALL TIMES. CLEAN UP SPILLS IMMEDIATELY. PERIODICALLY CLEAN HOOD INTERIOR, INCLUDING LIGHT GLASS PANEL. REPLACE BURNED OUT LIGHT BULBS TO MAINTAIN MAXIMUM ILLUMINATION.

DO NOT OVERLOAD THE WORK SURFACE WITH APPARATUS OR WORK MATERIAL. THE SAFE OPERATION OF THE LABORATORY HOOD IS BASED UPON HAVING PROPER AIRFLOW THROUGH THE STRUCTURE. DO NOT PLACE LARGE, BULKY OBJECTS SUCH AS BLOCK HEATERS, DIRECTLY ON THE HOOD WORK SURFACE. INSTEAD, ELEVATE THE OBJECT 2" TO 3" ON BLOCKS TO ALLOW A FLOW OF AIR UNDER THE OBJECT AND INTO THE LOWER REAR BAFFLE EXHAUST SLOT. ENSURE BLOCKS ARE LEVEL AND SECURED IN PLACE.



Blocking the bottom of the baffle at the rear of hood will change the airflow pattern in the hood causing turbulence and possible leakage at the face of the hood. (Don't store containers or supplies against the baffle, as this will affect airflow through the hood).

Avoid placing your head inside hood. Keep hands out of hood as much as practical.

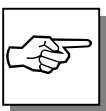
Always work as far back in the hood as possible. It is best to keep all chemicals and apparatus 6" inside the front of the hood.

Only explosion-proof models feature explosion-proof electrical components. Therefore, use of flammable or explosive materials in quantities above the explosive limit are not recommended.

Do not work with chemicals in this hood without the exhaust system running. Do not store chemicals in a fume hood.

Perchloric acid use in this hood is prohibited.

High-level radioisotope materials are prohibited for use in this hood.



AVOID CROSS DRAFTS AND LIMIT TRAFFIC IN FRONT OF THE HOOD. AIR DISTURBANCES CREATED MAY DRAW FUMES OUT OF THE HOOD.



The use of heat-generating equipment in this hood without the exhaust system operating properly can cause damage to the hood.

The Fiberglass 30 Laboratory Hood should be certified by a qualified certification technician before it is initially used. The hood should be re-certified whenever it is relocated, serviced or at least annually thereafter.

Ensure that the unit is connected to electrical service in accordance with local and national electrical codes. Failure to do so may create a fire or electrical hazard. Do not remove or service any electrical components without first disconnecting the hood from electrical service.

Proper operation of the fume hood depends largely upon the hood's location and the operator's work habits. Consult the *Reference Manual in Appendix D*.

Your Next Step

After you understand the theory of operation and safety precautions, you are ready to proceed to *Chapter 5: Using Your Fiberglass 30 Fume Hood*.

CHAPTER 5

USING YOUR

FIBERGLASS 30

FUME HOOD

Operating the Vertical-Rising Sash

Because of the Fiberglass 30 Hood counterbalanced sash mechanism, it will take only a few pounds of force to move the sash up or down, and you can operate the sash smoothly with one or two hands positioned anywhere along the handle. The vertical-rising sash may be raised to a maximum 20" operating height. The airflow requirements should be sized for the 20" operating height.

Operating the Blower

Your Fiberglass 30 Fume Hood utilizes a remote style blower or integral blower, which can be activated by turning the blower switch to “ON.” You can validate the hood performance by watching smoke drawn into the hood face opening. Explosion-proof models do not have a switch or wiring as this is field installed.

Operating the Lights

Your Fiberglass 30 Fume Hood is equipped with a factory-wired incandescent light to illuminate the hood interior. Simply turn the light switch to “ON” to operate. Explosion-proof models do not have a light.

Working in your Fiberglass 30 Fume Hood

Planning

- Thoroughly understand procedures and equipment required before beginning work.
- Arrange for minimal disruptions, such as room traffic or entry into the room while the hood is in use.

Start-up

- Turn on incandescent light and hood blower.
- Slowly raise the sash.
- Check the baffle air slots for obstructions.
- Allow the hood to operate unobstructed for 5 minutes.
- Wear a long sleeved lab coat and rubber gloves. Use protective eyewear. Wear a protective mask if appropriate.

Loading Materials and Equipment

- Only load the materials required for the procedure. Do not overload the hood.
- Do not obstruct the front air foil, or rear baffle slots.
- Large objects should not be placed close together and spaced above the work surface to permit airflow to sweep under the equipment.

- After loading the hood, wait one minute to purge airborne contaminants from the work area.

Work Techniques

- Keep all materials at least 6 inches inside of the sash, and perform all contaminated operations as far to the rear of the work area as possible.
- Segregate all clean and contaminated materials in the work area.
- Avoid using techniques or procedures that disrupt the airflow patterns of the hood.

Final Purging

- Upon completion of work, the hood should be allowed to operate for two to three minutes undisturbed, to purge airborne contaminants from the work area before shutting down blower.

Unloading Materials and Equipment

- Objects in contact with contaminated material should be surface decontaminated before removal from the hood.
- All open trays or containers should be covered before being removed from the hood.

Shutdown

- Turn off the incandescent light and hood blower, and then close the sash.

Your Next Step

After you understand how to operate and work in the fume hood, you are ready to proceed to *Chapter 6: Maintaining Your Fiberglass 30 Fume Hood*.

CHAPTER 6

MAINTAINING YOUR FIBERGLASS 30 FUME HOOD

Now that you have an understanding of how to work in the fume hood, we will review the suggested maintenance schedule and the common service operations necessary to maintain your fume hood for peak performance.



Only trained and experienced certification technicians should perform some of the service operations after the fume hood has been properly decontaminated. DO NOT attempt to perform these operations if you are not properly trained. The wrench icon precedes the service operations that require qualified technicians.

Routine Maintenance Schedule

Weekly

- Using ordinary dish soap to clean the surface inside of the fume hood, and the work surface.
- Using an appropriate glass cleaner, clean the sash and all glass surfaces.
- Operate the fume hood blower, noting the airflow velocity through the hood using a source of visible smoke.



Monthly (or more often as required)

- Determine the actual face velocity through the sash opening of the hood where the average reading should be at the specified velocity. (Use calibrated thermal anemometer or other approved apparatus).
- Using a damp cloth, clean the exterior surfaces of the hood, particularly the front of the hood, to remove any accumulated dust.
- Check all service valves, if so equipped, for proper operation.
- The hood baffles should be checked for blockages behind them to ensure that the hood is maintaining proper airflow.
- All weekly activities.



Annually

- Have the fume hood recertified by a qualified certification technician. See *Certifying the Fiberglass 30 Fume Hood* in Chapter 3.
- All monthly activities.

Biannually

- The sash assembly should be checked to ensure proper operation and to make sure there are no signs of abnormal wear on the sash pulleys, cables and clamps.

Routine Service Operations

Front Panel Removal:

1. Simply lift the front panel up and then away from the hood to provide access to the top.

Changing the Incandescent Lamp:

1. Turn light switch to “OFF”.
2. Raise the sash and reach inside the fume hood to unscrew the clear glass globe that protects the incandescent bulb.
3. Install the new incandescent bulb and then reverse the removal procedure.

Your Next Step

After you understand the maintenance procedures, you are ready to proceed to *Chapter 7: Modifying Your Fiberglass 30 Fume Hood*.

CHAPTER 7

MODIFYING YOUR FIBERGLASS 30 FUME HOOD

There are several ways to modify the fume hood for your individual requirements. These include the addition of work surfaces, service fixtures, air monitor, and electrical duplex outlets. See *Appendix A: Fiberglass 30 Hood Components* for installation location.

Installing Work Surfaces and Storage Cabinets

An optional work surface is available when installing the hood on storage cabinets. Contact Labconco Customer Service for ordering information on these 30" work surfaces and storage cabinets.



4882806	Work Surface	30" x 30"
9902200	Solvent Cabinet	30"
9901200	Acid Cabinet	30"
9900200	Base Cabinet	30"



Installing Additional Service Fixtures

Additional service fixtures can be installed in the available service fixture holes in the right sidewall and corner post. The fume hood is factory set to accept up to three valves. Contact Labconco Customer Service for information. The following service fixture kits are available:

2832600	Cold Water (CW) – Green
2832601	Hot Water (HW) – Red
2832602	Deionized Water (DW) – White
2832603	Vacuum (VAC) – Yellow
2832604	Air (AIR) – Orange
2832605	Gas (GAS) – Blue
2832606	Nitrogen (NIT) – Brown
2832607	Argon (ARG) – Gray
2832608	Steam (STM) - Black



Figure 7-1 - Knob

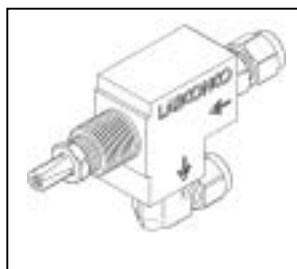


Figure 7-2 - Valve

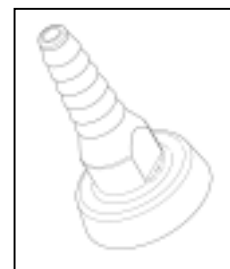


Figure 7-3 – Hose Connector



Installing Guardian™ Digital Airflow Monitor or Guardian™ Jr. Airflow Monitor

The Guardian Digital Airflow Monitor P/N 9743201 and 9743205 or Guardian Jr. Airflow Monitor P/N 9743202 and 9743206 allows you to continuously monitor face velocity through the fume hood opening. The fume hood right corner post is factory prepared to mount either monitor. Contact Labconco Customer Service to order.

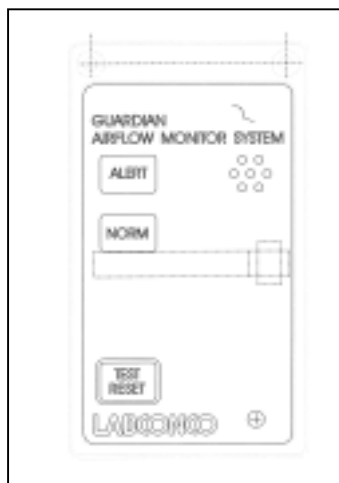


Figure 7-4

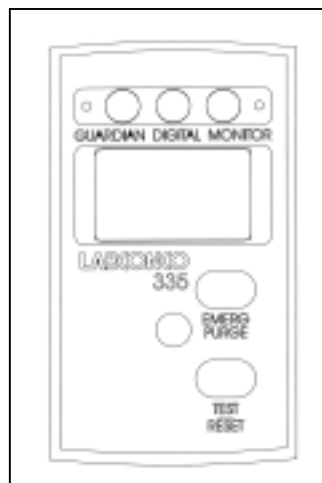


Figure 7-5

Installing an Electrical Duplex Receptacle

If you ordered your hood and want an electrical duplex outlet, then you can have one installed in the field by a qualified electrician. Contact Labconco Customer Service for ordering information. (Not acceptable on explosion-proof hoods). The following duplex kits are available:

- 2834800 115V, 20A Duplex Kit
- 2834801 115V, 20A GFCI Duplex Kit

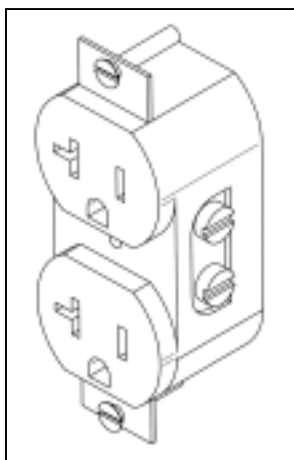


Figure 7-6

Your Next Step

After you understand the modifying procedures, you are ready to proceed to *Chapter 8: Troubleshooting*.

CHAPTER 8

TROUBLESHOOTING

Refer to the following table if your fume hood fails to operate properly. If the suggested corrective actions do not solve your problem, contact Labconco for additional assistance.

PROBLEM	CAUSE	CORRECTIVE ACTION
Remote blower and light won't operate	Wires not connected at junction box or switches.	Check connection of switches.
		Check connection to control box on top of unit.
	Circuit breakers tripped in building electrical supply.	Reset circuit breakers.
Remote blower won't operate, but light works	Blower wiring is disconnected.	Inspect blower wiring and switch.
	Belt broken.	Replace belt.
	Blower motor is defective.	Replace blower motor.
Fume hood blower operates but light will not operate	Lamp not installed correctly.	Inspect lamp installation.
	Lamp is defective.	Replace lamp.
	Circuit breaker in building is tripped.	Reset the circuit breaker.

PROBLEM	CAUSE	CORRECTIVE ACTION
Fume hood blower operates but light will not operate	Lamp wiring is disconnected.	Inspect lamp wiring.
	Defective lamp.	Replace lamp.
Contaminants outside of fume hood	Improper user techniques for the fume hood.	See “Certifying the Hood” Chapter 3 and “Safety Precautions” Chapter 4 sections in the manual. (Ref. Appendix D)
	Restriction of the baffle air slots or blockage of the exhaust outlet.	Remove baffles to ensure that all air slots and the exhaust outlet are unobstructed.
	External factors are disrupting the fume hood airflow patterns or acting as a source of contamination.	See “Location Requirements” Chapter 2, “Certifying the Hood” Chapter 3, and “Safety Precautions” Chapter 4 sections of this manual. (Ref. Appendix D)
	Fume hood has improper face velocity.	Have fume hood re-certified and check remote blower exhaust system. Hood should have average face velocity of 80-100 fpm.
Vertical-rising sash no longer operates smoothly	Cable is frayed or plastic protection is damaged.	Inspect cable and replace cable if worn or damaged immediately; otherwise injury could result.
	Pulley bearing is damaged.	Replace pulley, bearing or add grease.
	Cable has slipped off the pulleys.	Re-install, cable must be replaced immediately if damaged.
	Weight has broken pulleys.	Replace weight pulleys.

PROBLEM	CAUSE	CORRECTIVE ACTION
Electrical duplex outlet no longer has power	Wires not connected or faulty duplex.	Check wire connection or replace duplex.
	Circuit breakers tripped in building electrical supply.	Reset circuit breakers.
Service valves no longer operate	Faulty building supply.	Inspect building supply shut off valves and appropriate pressures below 40 PSI.
	Valve no longer operates.	Replace valve and check for leaks.
	Supply line or outlet line has leaks.	Inspect line for leaks and fix any leaking plumbing connections.

APPENDIX A

FIBERGLASS 30

HOOD COMPONENTS

Illustration A-1 indicate the location of the following service parts:

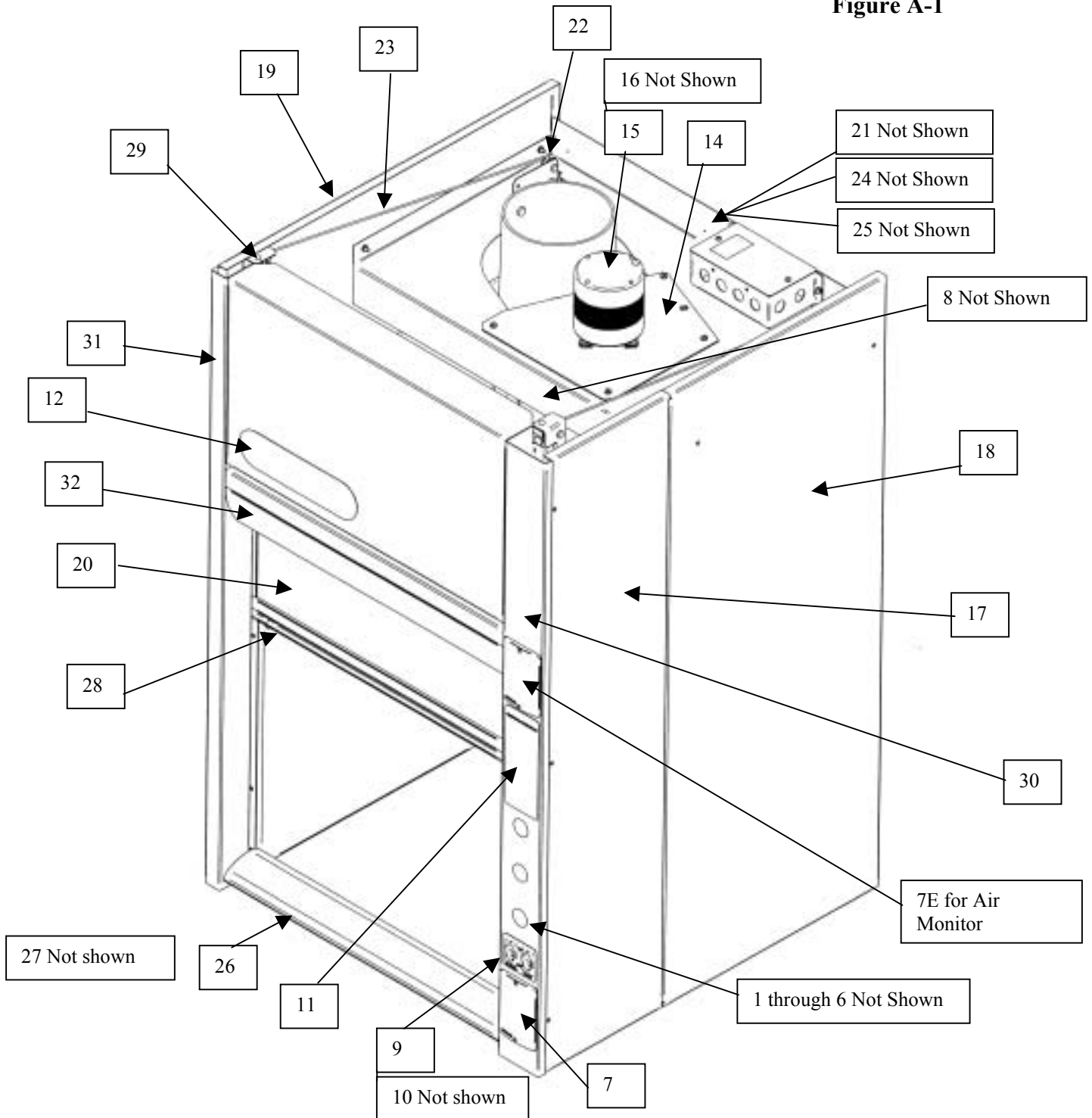
Fiberglass 30 Hood Replacement Parts

Item	Quantity	Part No.	Description
1A	1	9817000	Valve, Labconco ¼" Compression Fitting
1B	1	9817002	Valve, Labconco Deionized ¼" Compression Fitting
1C	1	9818000	Nut, Valve Mtg. (Labconco)
2	1	9818700-01-02-03-04-05-06-07-08	Knobs (Gray, Green, Blue, Orange, Yellow, Red, White, Black, Brown)
3A	1	9818800	Hose Barb, Gray – Neutral or Argon – NOT SHOWN
3B	1	9818801	Hose Barb, Green – Cold Water – NOT SHOWN
3C	1	9818802	Hose Barb, Blue – Gas – NOT SHOWN
3D	1	9818803	Hose Barb, Orange – Air – NOT SHOWN
3E	1	9818804	Hose Barb, Yellow – Vacuum – NOT SHOWN
3F	1	9818805	Hose Barb, Red – Hot Water – NOT SHOWN
3G	1	9818806	Hose Barb, White – Deionized Water – NOT SHOWN
3H	1	9818807	Hose Barb, Black – Neutral or Steam – NOT SHOWN
3I	1	9818808	Hose Barb, Brown – Nitrogen – NOT SHOWN
3J	1	9819000	Nut, Hose Barb – NOT SHOWN
4	1	9825500	Label, Knob (contains all labels)
5	1	9818900	Lens, Knob
6A	1	2832600	Fixture Kits – (CW)
6B	1	2832601	Fixture Kits – (HW)
6C	1	2832602	Fixture Kits – (DI)
6D	1	2832603	Fixture Kits – (VAC)
6E	1	2832604	Fixture Kits – (AIR)
6F	1	2832605	Fixture Kits – (GAS)
6G	1	2832606	Fixture Kits – (NIT)
6H	1	2832607	Fixture Kits – (ARG)
6I	1	2832608	Fixture Kits – (STM)
7A	1	2834800	115V, 20A Duplex Kit
7B	1	2834801	115V, 20A GFCI Duplex Kit

Appendix A: Fiberglass 30 Components

Item	Quantity	Part No.	Description
7C	1	9818200	Cover Plate 115V Duplex
7D	1	9818100	Cover Plate, 115V GFCI
7E	1	9818300	Wallplate, Blank
8A	1	1273600	Bulb, 115V
8B	1	1273700	Bulb, 230V
8C	1	4849800	Light Fixture Assy complete with wiring, parts 8D through 8G
8D	1	4849900	Light Fixture – a) Body & Socket VFB15, b) Pendent Cover 1/2" VP1, c) Globe, 150W, 264-0006-9909
8E	1	4850000	Wiring Harness, Light
8F	1	1279700	Gasket, Base
8G	1	1279800	Gasket, Globe
9A	1	1302300	Switch, Rocker
9B	1	1327500	Switch, Plug (Fills cutout without switch)
10A	1	2834400	Wiring Harness, Main 115V
10B	1	2834500	Wiring Harness, Main 230V
11	1	2834000	Label Set, Corner Post
12	1	2834100	Label, Front Panel
13	1	2831400	Front Panel
14A	1	2833000	Motor Plate – 115V only
14B	1	2831700	Motor Plate, 230V, 115V, EP - 230V, EP
15A	1	2807100	Motor, 115V
15B	1	1203600	Motor, 230V
15C	1	1200400	Motor, 115 VEP
15D	1	1211000	Motor, 230V EP
15E	1	1852300	Reducing Bushing – 230V only
15F	4	1662600	Rubber Grommet – 115V only
16A	1	1450000	Wheel, Blower – 115V only
16B	1	4716200	Wheel, Blower – 230V, 115V – EP, 230V – EP
17	1	2833400	Removable Side Panel – Right
18	1	2831900	Side Panel – Right
19	1	2832000	Side Panel – Left
20	1	2832500	Sash Glass Assembly
21	1	2833800	Sash Weight
22A	1	1861400	Pulley – 1-3/16" Dia.
22B	1	3627500	Thrust Washer
23	2	4949902	Cable, Sash
24	4	1920100	Clamp, Cable Replacement
25	2	1972100	S-Hook
26	1	2831500	Air Foil
27	2	1934300	Air Foil Spacer Stop
28	2	9713300	Rubber Bumper – Sash Handle
29A	1	2833500	Bracket, Cable Front – Right
29B	1	2833501	Bracket, Cable Front – Left
29C	1	1663200	Rubber Bumper – Upper Sash Stop
30	1	2831100	Corner Post, Right
31	1	2831200	Corner Post, Left
32	1	2831300	Header
30	1	9724500	Sash Stop Kit
31	1	1663200	Upper Sash Bumper
32	1	2831300	Header

Figure A-1



APPENDIX B

FIBERGLASS 30 HOOD

DIMENSIONS

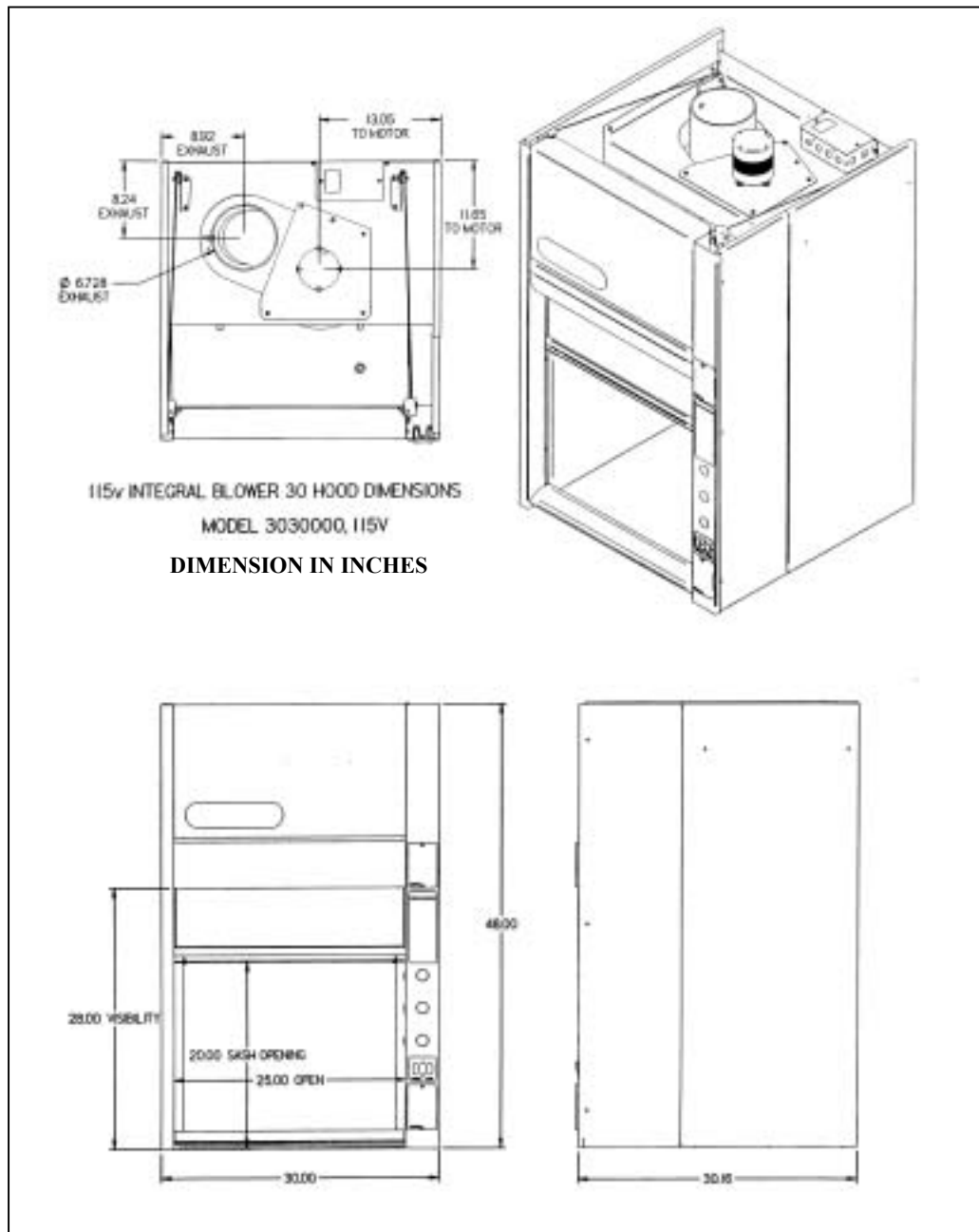


Figure B-1

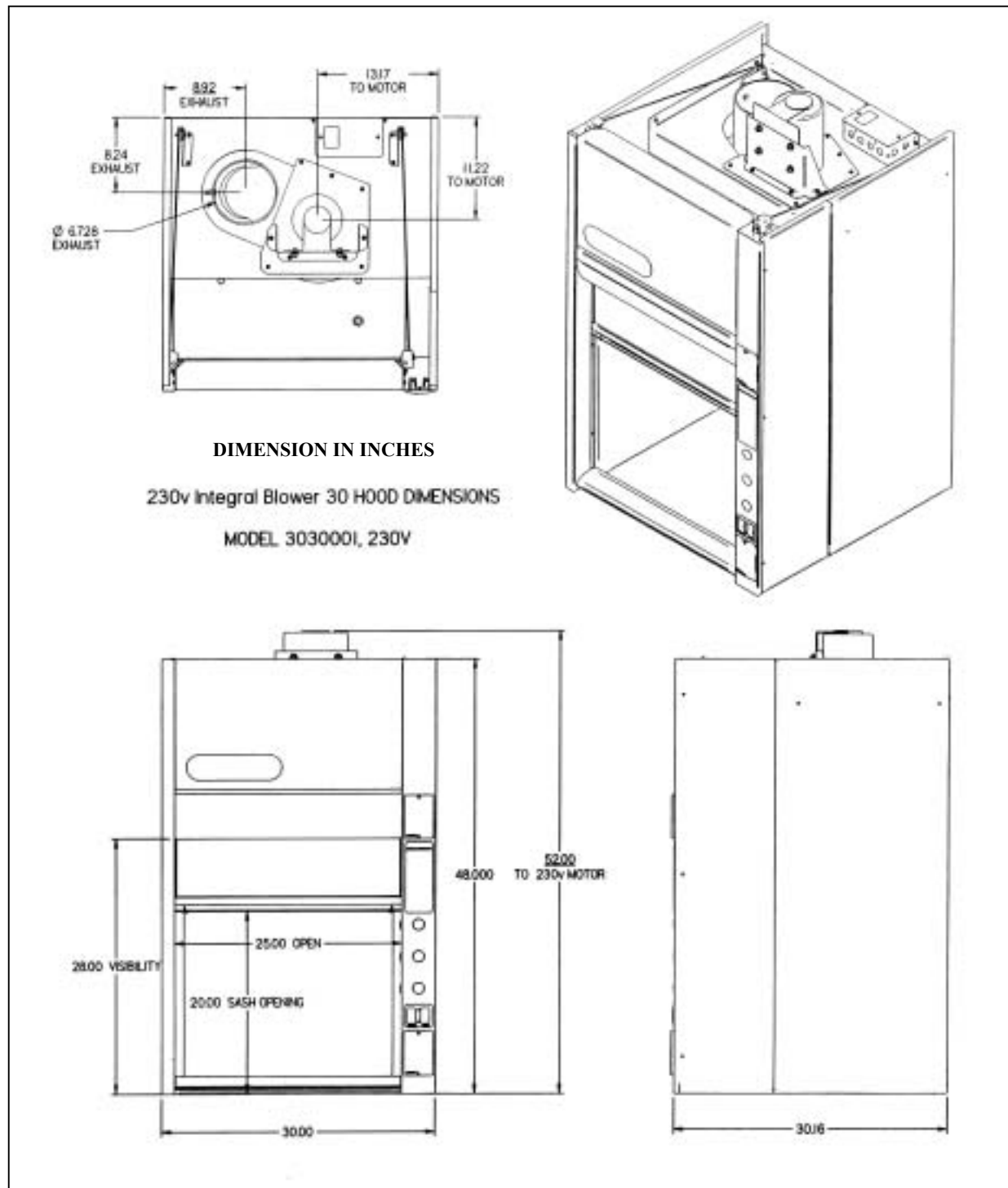


Figure B-2

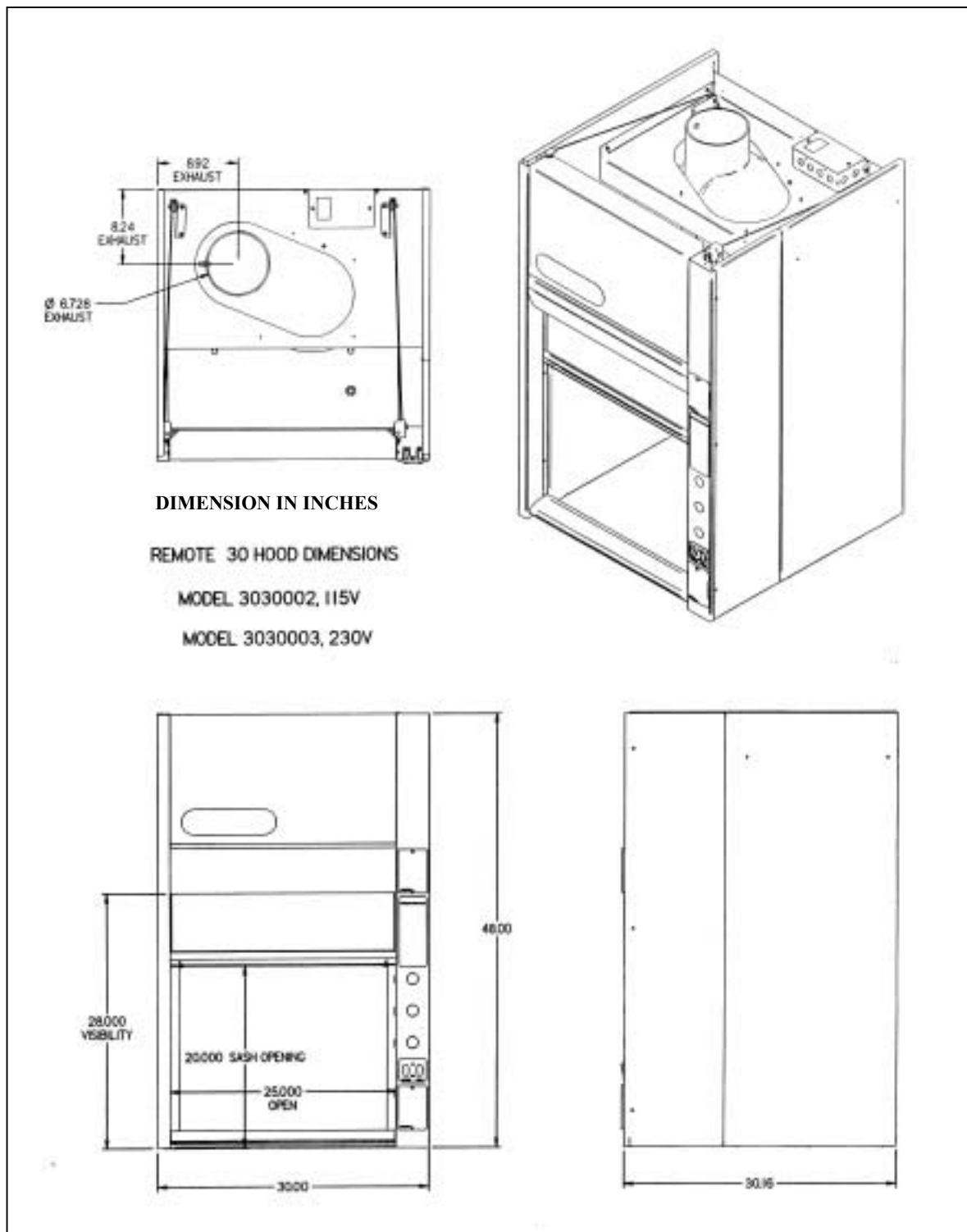


Figure B-3

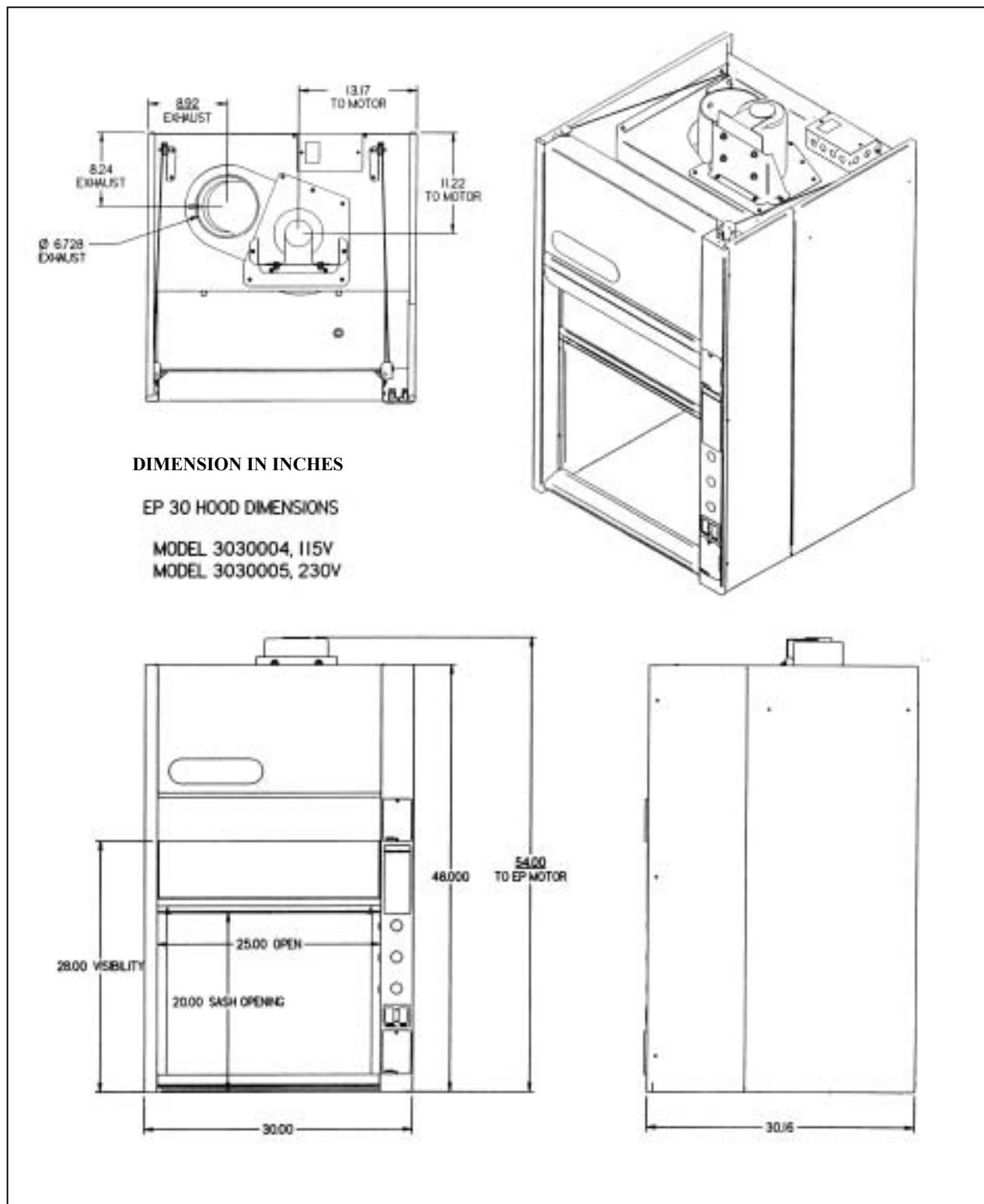


Figure B-4

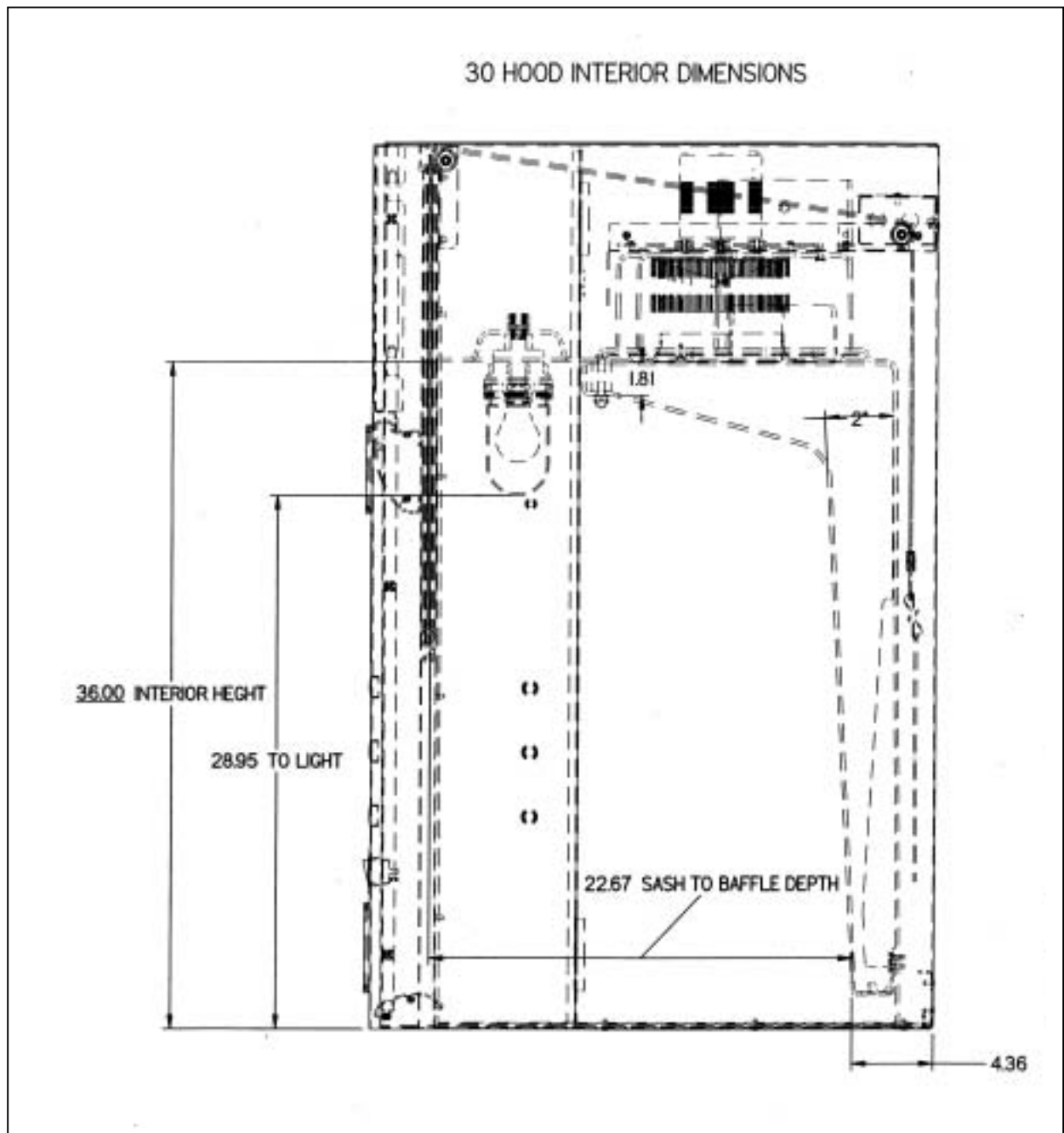


Figure B-5

APPENDIX C

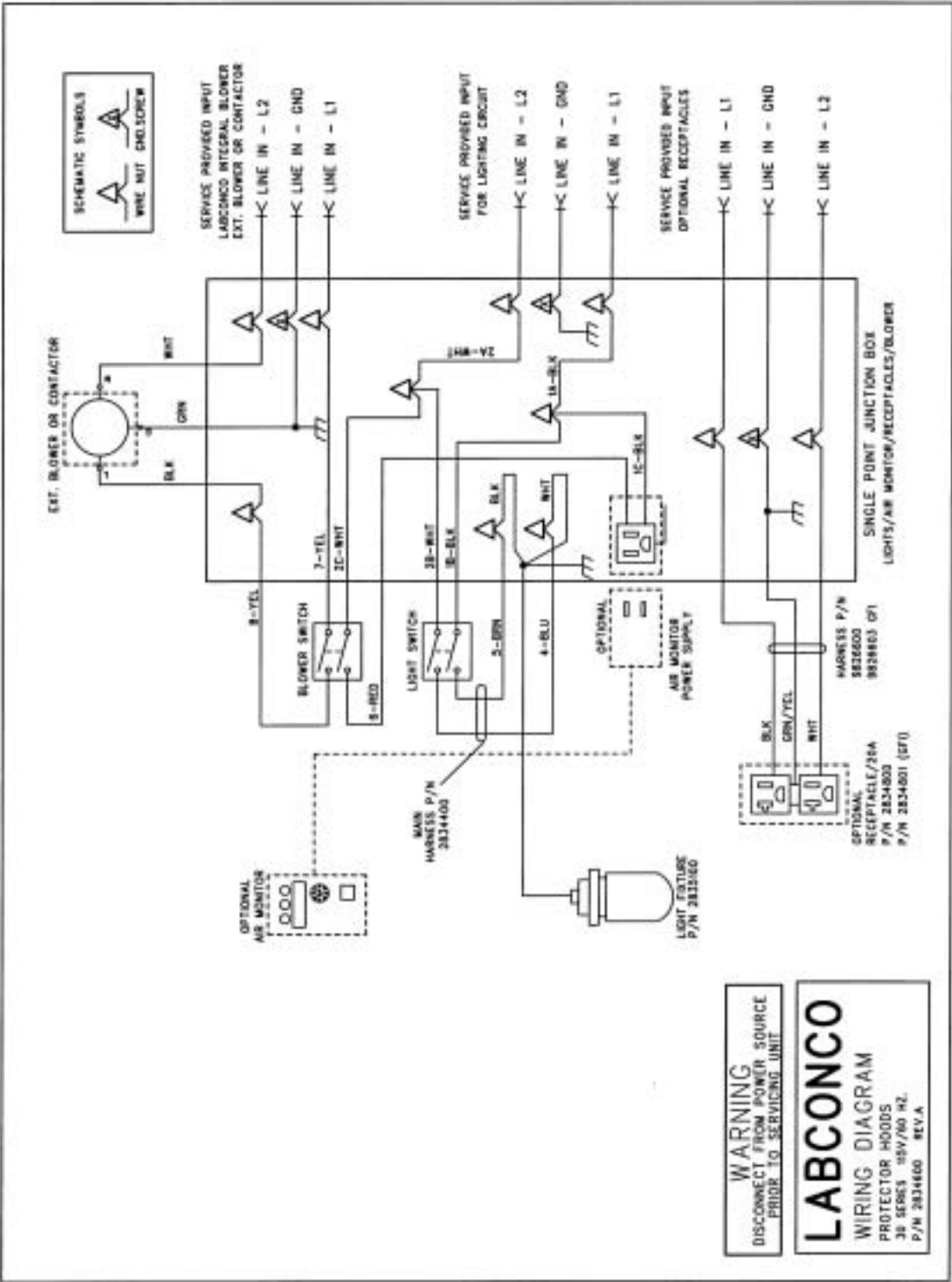
FIBERGLASS 30

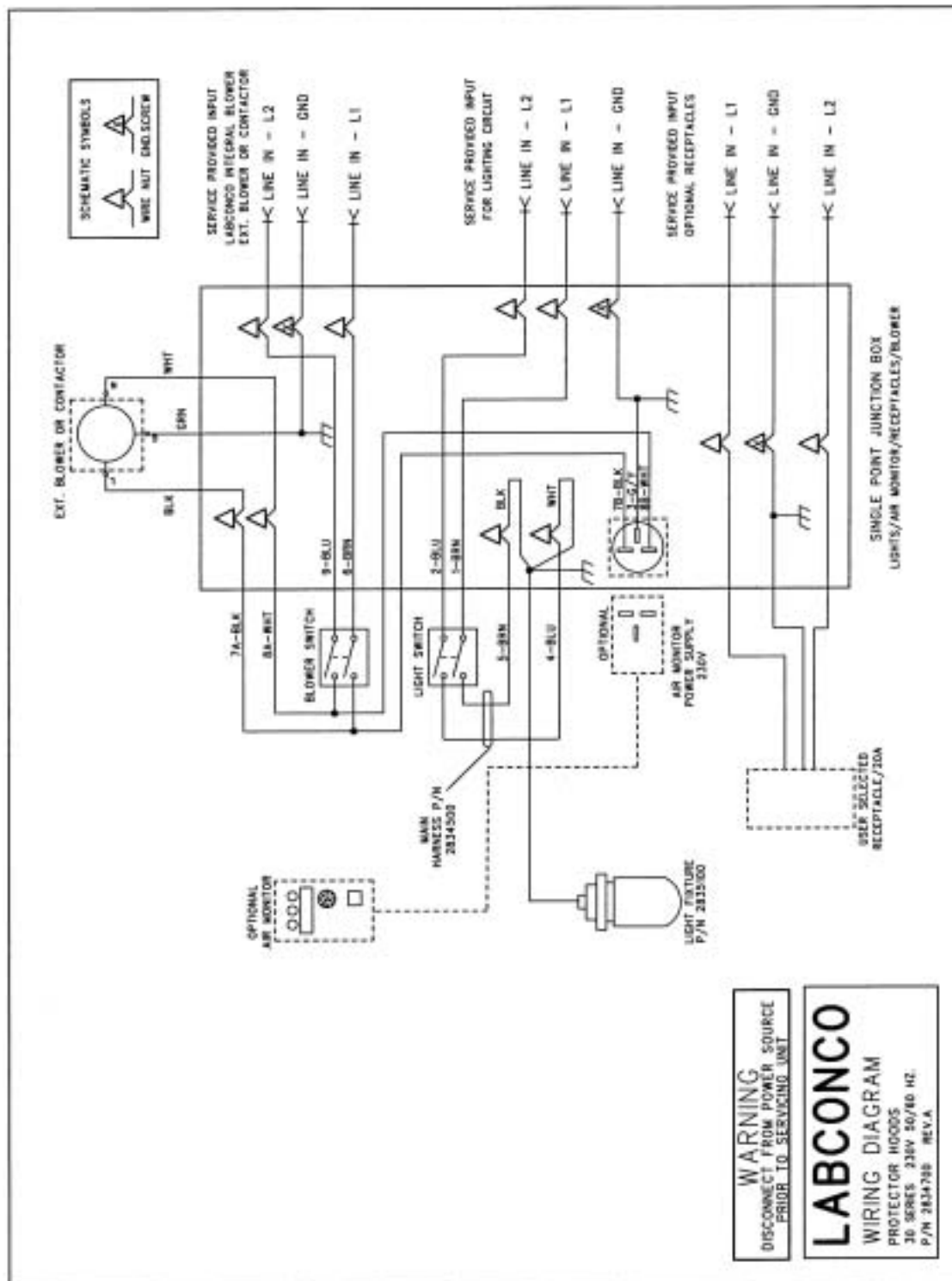
FUME HOOD

SPECIFICATIONS

Environmental Conditions

- Indoor use only.
- Maximum altitude: 6562 feet (2000 meters).
- Ambient temperature range: 41° to 104°F (5° to 40°C).
- Maximum relative humidity: 80% for temperatures up to 88°F (31°C), decreasing linearly to 50% relative humidity at 104°F (40°C).
- Main supply voltage fluctuations not to exceed $\pm 10\%$ of the nominal voltage.
- Transient over-voltages according to Installation Categories II (Over-voltage Categories per IEC 1010). Temporary voltage spikes on the AC input line that may be as high as 1500V for 115V models and 2500V for 230V models are allowed.
- Used in an environment of Pollution degrees 2 (i.e., where normally only non-conductive atmospheres are present). Occasionally, however, a temporary conductivity caused by condensation must be expected, in accordance with IEC 664.





APPENDIX D

REFERENCES

Many excellent reference texts and booklets are currently available. The following is a brief listing:

Laboratory Ventilation Standards

Federal Register 29 CFR Part 1910

Non-mandatory recommendations from "Prudent Practices".

- Fume hoods should have a continuous monitoring device
- Face velocities should be between 60-100 linear feet per minute (lfpm)
- Average 2.5 linear feet of hood space per person

Occupational Health and Safety

U.S. Department of Labor

200 Constitution Avenue N.W.

Washington, DC 20210

(202) 523-1452

Industrial Ventilation-ACGIH

- Fume hood face velocities between 60-100 lfpm
- Maximum of 125 lfpm for radioisotope hoods
- Duct velocities of 1000-2000 fpm for vapors, gasses and smoke
- Stack discharge height 1.3-2.0 x building height
- Well designed fume hood containment loss, <0.10 ppm

Industrial Ventilation, A Manual of Recommended Practice.

24th Edition, 2001

American Conference of Governmental Industrial Hygienists

1330 Kemper Meadow drive

Cincinnati, OH 45240-1634

(513) 742-2020

ASHRAE 110-1995 Method of Testing Performance of Fume Hoods

Evaluates fume hood's containment characteristics

- Three part test: Smoke generation, Face velocity profile, Tracer gas release @ 4 liters per minute
- Rated As Manufactured (AM), As Installed (AI) and As Used (AU)

American Society of Heating, Refrigerating, and Air Conditioning Engineers

1791 Tullie Circle N.E.

Atlanta, GA 30329

(404) 636-8400

ANSI Z9.5-1993 Laboratory Standard

Covers entire laboratory ventilation system.

- Vertical stack discharge @ 2000-3000 fpm
- New and remodeled hoods shall have a monitoring device
- Ductless hoods should only be used with non-hazardous materials
- Fume hood face velocities between 80-120 fpm

American Industrial Hygiene Association

2700 Prosperity Avenue, Suite 250

Fairfax, VA 22031

(703) 849-8888

SEFA 1-2002

- Fume hood face velocities based on toxicity levels of chemicals
 - Class A – 125 to 150 fpm
 - Class B – 80 to 100 fpm
 - Class C – 75 to 80 fpm
- Test method – face velocity profile and smoke generation

Scientific Equipment & Furniture Association

1028 Duchess Drive

McLean, VA 22102

(703) 538-6007

NFPA 45 – 2002 Fire Protection for Laboratories Using Chemicals

- Laboratory hoods should not be relied on for explosion protection
- Exhaust air from fume hoods should not be recirculated
- Services should be external to the hood
- Canopy hoods only for non-hazardous applications
- Materials of construction should have flame spread of 25 or less
- 80 to 120 fpm to prevent escape

NFPA 30 – 2000 Flammable and Combustible Liquids Code

- Approved cabinets may be metal or wood
- Vent location on cabinets are required
- Venting of cabinets not a requirement

National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101
(800) 344-3555

General References

American Conference of Governmental Industrial Hygienists. *Industrial Ventilation, A Manual of Recommended Practice*, Cincinnati, OH.

ASHRAE Standard Committee. *ASHRAE Standard* Atlanta: ASHRAE Publications Sales Department, 1995

British Standards Institution, *Laboratory Fume Cupboards*. Parts 1, 2 and 3, London: 1990

Department of Labor, Occupational Safety and Health Administration, *29 CFR Part 1910, Occupational Exposures to Hazardous Chemicals in Laboratories, Final Rule*. Vol. 55, No. 21. Washington D.C.:1990

DiBerardinis. L. et al. *Guides for Laboratory Design, Health and Safety Considerations*. Wiley & Sons, 1987

McDermott, Henry, *Handbook of Ventilation for Contaminant Control, 2nd Edition*. Butterworth Publishers, 1985.

Miller, Brinton M. et al. *Laboratory Safety: Principles and Practices*. American Society for Microbiology, Washington, D.C.: 1986

NIH Guidelines for the Laboratory Use of Chemical Carcinogens. NIH Publication No. 81-2385.

Rayburn, Stephen R. *The Foundation of Laboratory Safety, A Guide for the Biomedical Laboratory*. Springer-Verlag, New York: 1990

Sax, N. Irving and Lewis, JR., Richard J. *Rapid Guide to Hazardous Chemicals in the Workplace*. Van Nostrand Reinhold, 1987.

Appendix D: References

Schilt, Alfred A. *Perchloric Acid and Perchlorates*. The G. Frederick Smith Chemical Company, Columbus, OH: 1979.

Steere, Norman. *CRC Handbook of Laboratory Safety*, 2nd Edition. CRC Press, 1971.

DECLARATION OF CONFORMITY

Application Council Directive(s): 73/23/EEC, 89/336/EEC

Standard(s) to which conformity is declared: EN61010, EN55022, EN50082-1

Manufacturer's Name: Labconco Corporation

Manufacturer's Address: 8811 Prospect Avenue
Kansas City, MO 64132 USA

Importer's Name: See Shipping/Customs Documents*

Importer's Address: See Shipping/Customs Documents for your equipment

Type of Equipment: Laboratory Equipment- Fume Hoods/Cabinets

Model No: Fiberglass 30 Fume Hood:

3030000 Fiberglass 30 Laboratory Hoods
3030001 Fiberglass 30 Laboratory Hoods
3030002 Fiberglass 30 Laboratory Hoods
3030003 Fiberglass 30 Laboratory Hoods
3030004 Fiberglass 30 Laboratory Hoods
3030005 Fiberglass 30 Laboratory Hoods

Serial No.: Various – See Individual Declaration

Year of Manufacture: 2003 and subsequent

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

See individual Declaration of Conformity which will be signed by the importer for your country.

Place:

(Signature)

Date:

(Full Name)

(Position)

*An individual version of this declaration is included with your shipping/customs documentation.

Labconco P/N 36960-39 REV. – ECO B699